POPULAR Computing WEEKLY

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Vol 4 No 6

Sinclair Speaks

- Spectrum portable details
- A £350 half-megabyte 'Winchester' for the QL – a world first in wafer-scale chip technology
- Sinclair's biggest problem with the QL
- First results of Sinclair's fifth generation research at Metalab
- Atari's 'super-hype'
- Sir Clive's ultimate computer

Amstrad's CPC 664

AMSTRAD is to launch the first of its new machines this year at the LET trade show on February 17. The machine is Z80-based and software compatible with the existing CP464 model.

The company also plans an advanced 68000-based 32/16-bit machine, likely to be previewed at the Personal Computer World Show in September.

The Z80 machine to be launched in February will be called the CPC 664, will comprise the micro, monitor and data storage system in one unit, as the CPC 464 does, but will replace the cassette recorder with a 3 inch Hitachi standard disc drive. The monitor will contain a more sophisticated video chip. It is likely that the memory size will increase to 128K in two 64K bank-switchable blocks. The machine has been designed to be disc software compatible with the CPC464 disc unit option.

Amstrad boss Alan Sugar

Amstrad is expected to bring the 664 out at the same price as the colour monitor version of the CPC 464 – £349 – accompanied by a suitable price cut on the 464.

The 68000-based machine planned for announcement

continued on page 4 ▶

SORCERY is the latest release from Virgin for the Amstrad CPC 464. An MSX version will follow. The company has also converted *Strangeloop* for the C64 for a March release. All are priced at £8.95 each.

Poor sales finally break Oric

AFTER months of speculation concerning the financial viability of the company, micro manufacturer Oric Products International has at last called in the receiver.

Continuing poor sales of the Atmos machine in this country, and distribution problems, are blamed for the failure. "Oric has been looking over its shoulder at the receiver for about six months now," said Bruce Everiss, managing director of Tansoft, who also deals with the marketing of Oric's products.

"Two factors affected Oric the most – a split within the management of ASN, its French distributor, which vastly reduced sales in France, and Oric's exclusive UK distribution contract with Prism, which did not work out."

Oric had an outstanding legal action against Prism, it had sued Prism for £4m, with a summary judgement of £320,000. With both companies now in receivership, the action becomes void.

The receiver, J D Cross of Cambridge accountants Cater and Myhill, is thought to have had several offers for Oric already, including a number from overseas concerns. "There's no doubt someone will buy the company – the new hardware products make it very attractive. While Edenspring, the holding company, will want out, I don't see why a large compa-

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INSIDE ⟩ AMX'S BBC MOUSE CONTROLLER REVIEWED ⟩



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View

Are the Z80 and 6502 processors dead?

Eight months from now Sinclair's QL and Apple's Macintosh will no longer be alone. Every home computer manufacturer worth its salt is busy working on a 68000-family chip machine – Commodore's Amiga, Atari's ST, even Amstrad is reckoned to have a 68000 micro under development.

As Sinclair, particularly, is now discovering the transition is not an easy one. The British recreational software houses have over the last three or so years acquired considerable programming expertise – restricted to the Z80 (ZX80, ZX81, Spectrum, Amstrad) and 6502 (Vic 20, C64, Plus/4, C16, BBC, Electron, Oric-1 and Atmos) chips.

Switching to the 68000 series is not a straightforward matter. The 68000 is a newish processor about which little is known by the majority of small houses.

Few of the UK's software houses have the resources to make the 68000 quantum leap. Most are therefore playing safe and easy – hence the flood of software for the Amstrad, the Z80 familiar ground.

Admittedly, there are other reasons why so little software has yet appeared for the QL, but part of the reason is that program development isn't just a question of bashing out a few Ks of code.

But 68000 is taking over, programmers must adapt or lose out. Britain has an enviable reputation for 8-bit programming. Can it keep it in the 16- and 32-bit league?

From Sinclair's point of view it is unfortunate that being first means bearing the brunt of this transition.

Atari, Commodore and Amstrad will find it easier, thanks to Sinclair.

Vol 4 No 6

POPULAR Computing WEEKLY

Presents...

Futures...

We announce our search for the top computer games player... special User Groups issue, including a comprehensive club directory

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Computer Trade Association Magazine of the Year

Sinclair cartridge cut

THE retail price of Sinclair microdrive cartridges has finally been reduced

Sinclair has cut the price dramatically from £4 95 to £1 99 Over one million cartridges have already been sold, both for the QL and the ZX microdrive add-on for the Spectrum.

The cut also applies to software houses buying in bulk, so that prices for QL software, for example, could fall dramatically Previously there have been no programs available for under £20 Now, one company, Quantum Software, plans to introduce utility packages at £6 95 each.

Sinclair says that volume production and improved manufacturing techniques at the one microdrive duplication plant – Ablex – have permitted the reduction to be made

Sinclair will also continue to offer software houses producing titles on microdrive free duplication services at Ablex

Amstrad 664

◄ continued from page 1

later in the year will be a direct competitor for Atari's planned ST machine Like the ST, the Amstrad model will probably include Digital Research's new Gem operating system, which facilitates the use of icons and screen windows rather like the Apple Macintosh Locomotive Software, which designed the firmware for Amstrad's CPC 464, is known to be looking closely at the GEM system. Amstrad already has a working prototype of the machine which features high resolution A4 size colour screen

It is not clear yet if the 68000 machine will include a Z80 second processor, making it CPC 464/664 and CP/M compatible

Oric broken

◄ continued from page 1

ny like Thorn-EMI, GEC or Racal shouldn't want to snap it up," said Bruce Everiss

Oric's new and as yet unlaunched, machines, the Atmos successor, the Stratos, a portable 6502 model, and an IBM compatible are now in limbo until a buyer is found, although the Stratos was formally announced in Frankfurt last week.

It is unclear what the final debts of Oric will amount to, but a figure of £4m – the same amount for which Oric unsuccessfully tried to sue KMP, its advertising agency, and later Prism – has been suggested.

Formed in 1983, Oric began by launching the Oric I computer The following year the company was taken over by Edenspring, although Oric was the larger company at the time Edenspring held a £2m property portfolio, much of which was invested in Oric After the take-over the company launched the Atmos

"Our investment in the UK market took almost all the money we had," said Barry Muncaster, who is managing director of both Edenspring and Oric

"In addition we had £3½m invested in the Spanish Scandanavian and Benelux markets, yet it is only in France and Germany that we had a strong footing"

No cuts yet at Commodore

COMMODORE has confirmed it has no immediate plans to follow the lead of Sinclair and Acorn and cut prices on its machines (see *Popular Computing Weekly*, January 31).

"We are looking at the situation with hardware very closely," said David Gerrard, Commodore UK's marketing manager "The market does not seem to have settled down after Christmas, and we are certainly not going to do what Acorn did, and cut prices immediately The reduction on the Electron has muddied the waters somewhat If a price cut does look opportune, then we'll do it."

Commodore's margins on its machines have already been reduced due to the plunging value of the pound compared with the dollar

After Imagine – Denton Designs

BEYOND Software is to publish the next program from Denton Designs, the programming team made up from ex-Imagine staff.

Called *Shadowfire*, the game is a graphic adventure On-screen icons take the place of text to drop an object, for example, the player must command cursor over an icon of a hand and the object

Around 150 different icons representing players, objects and actions are used in the game, in which the player controls six secret agents out to rescue a kidnapped ambassador from the clutches of the evil General Zoff.

Shadowfire will be available in April for the Spectrum and Commodore 64 Both versions will cost £9 95

Denton's first program was the adventure *Gift from the Gods*, published by Ocean

The receiver goes in at Prism

THE Prism group of companies has gone into receivership, weeks after the announcement that the company was in financial difficulties

The appointment of a receiver comes only a week after Prism made 28 job cuts, and reduced the price of its VTX5000 modem to £69 95

The group consisted of a number of companies dealing with Prism's various interests the modem, the Wren portable computer, EEC Publications, which published *Practical Robotics* until that title folded in late 1984, the Movit robots, and the distribution of hardware for a number of companies, including Sinclair, for which Prism was, at one time, the main supplier to the independent outlets

Last year, however, Sinclair began reduce its dependence on Prism Terry Blood Distribution was given a portion of Sinclair's hardware, Websters and Lightning were appointed software wholesalers As a result Prism accounted for only 30% of Sinclair's distribution for the whole of 1984 "Sinclair could foresee the possibility of Prism having problems," said a Sinclair spokesman.

A spokeswoman for the receiver, Stephen Adamson of Arthur Young, McCelland, Moores, said, "It is our intention that supplies of Sinclair products to the consumer will be maintained under the terms of Sinclair's contract with Prism."

Prism had problems throughout 1984 in expanding their business interests It pulled out of its software merchandising scheme with retailers, the Movit robots did not sell well, and it signed exclusive distribution contracts with Oric and Enterprise The Oric deal came at a time when Oric computers were being heavily discounted by stores and production delays meant the Enterprise micro was not shipped to Prism during the year at all.

Prism raised £1 2m last spring when three City institutions – Equity Capital for Industry, CIN and Barclays Development Capital – bought 10% of the equity

One day prior to the receiver going in, Prism issued a writ against its accountant, Arthur Andersen, alleging professional negligence

Sinclair's futures market

*Sir Clive Sinclair talks to **David Kelly** about his company's plans*

Sinclair research recently took delivery of its single biggest cheque yet It was from Dixons for sales of the Spectrum and Spectrum + at Christmas made out for £1,761,386 76 Not bad for a few weeks work.

With its Spectrum and Spectrum + the company did very well at Christmas increasing its share of the market from around 42 per cent in 1983 to 45% in 1984

But if the Spectrum is doing well, then Sinclair is finding things a bit tougher with its QL machine

The company sold 44,297 QLs in 1984 – less than half the number of spectrums sold in just the three weeks prior to Christmas If Sir Clive is maybe not over the moon he shows no sign of being unhappy with the figure. "Compared with the Spectrum it may not sound a lot but the QL is three times the price selling to serious computer users – more machines than the number of Act Apricots so far sold, for example." And around a fifth of the number of Apple Macintoshes sold so far

"Obviously QL sales are fewer than the BBC machine – the BBC has been around for a lot longer. I don't expect to see QL sales suddenly take off, but I predict a good steady growth this year."



Sir Clive acknowledges that the QL got off on the wrong foot when it was launched, resulting from delivery delays and production problems "Even despite our very bad start we shipped 8,200 QLs in December "

He does not seem at all perturbed by any of the increasing number of 68000 competitors for the QL from Atari, Commodore, and Amstrad. "None of them are real yet – they aren't on sale to compete with the QL "

"Commodore's Amiga machine could be out perhaps this year but Atari doesn't have a machine – it has a box We respect Commodore as competitors but we remain unconvinced by Atari. CES Show in Las Vegas in January was classic Jack Tramiel super-hype – and he's a pretty convincing guy."

It is beginning to look as though a substantial proportion of the new 68000-based machines will run Digital Research's new GEM operating environment. Atari has already signed up and Amstrad seems likely Will Sinclair follow suit with mice, icons and windows? Sir Clive is not bowled over by the prospect "I thing icons are a gimmick" He smiles as he thinks of something quotable – "Mice are as much of a nuisance on the desk at they are in the kitchen."

The problem with GEM is that Digital Research's main priority is to get the operating system on to the IBM PC compatible machines The Macintosh has its own built-in operating system similar to GEMs A 68000 implementation takes second priority The 68000 version of GEM seems unlikely to be available for some months yet and Atari's ST could well be delayed as a result.

"If they get GEM working on 68000 I'm sure we will offer it on the QL If we want it, it's there, but we have no specific plans to offer GEM If people want it we'll buy it Both the QL and the Mac have 128K, yet on the Mac by the time you've loaded the operating system you have 32K left – it'll be the same with GEM on the QL "

Sinclair has no regrets about basing the QL on the 68008 – the 32/8-bit version of the 68000, in the light of what is beginning to look like a flood of 68000 32/16-bit machines "There is no question of producing a new QL based on the 68000 – the 68008 is actually a newer, better chip and we are sticking with it. For 8-bit screen handling it is easier and all round it is a neater system There is no speed advantage in the 68000 to speak of – the theoretical 8% gain isn't worth talking about."

If there are no plans to produce a 68000-based machine Sinclair does have thoughts in other directions "At some stage we might go to a 68020 32/32-bit design but that's pure speculation – its far too early to say What's the point in doing a 68000-based machine though, when everyone else is doing it?"

By far his biggest single problem with the QL now – he acknowledges – is how to change public perception of the machine A persistent legacy from the QL's early history is a lingering public doubt about the quality of construction, about the viability of microdrives as reliable mass storage devices and about the availability of a substantial range of software for the QL.

"It can be done, he says "look at the IBM PC jr – after a poor initial response its suddenly taken off." With the first QLs we got a well deserved bad reputation on microdrives Early on we got a very bad yield and we have been strenuously working to correct these early problems " Several small mechanical alterations have been made to the design of the QL aimed at curing the problems Sinclair is now achieving a 3.5 per cent return rate on QLs – a respectable figure – and is hoping to get nearer 2% in the very short term.

The company is still unswervingly committed to the idea of using microdrives instead of more conventional disc drives The recent swingeing price cut of cartridges from £4 95 to £1.99 may help the cause – making them at least price-compatible with conventional floppy discs, even though they don't offer the same storage capacity "Microdrives are a cheaper technology than discs and we want to convince people that they are a viable alternative Any serious computer must have a built-in mass storage system – that's why the QL has two microdrive storage systems built in – twin disc drives just couldn't have been provided in the QL at the price

"Now that microdrives work, they must be seen as one of our strengths rather than as a weakness " Nobody else has anything like them – nothing comes close in terms of price and performance

The other big question mark surrounding the QL is software Last summer Nigel Searle, Sinclair's managing director, predicted that fifty software

packages would be available from Sinclair for the QL by the end of the year. One month into 1985 the number is nearer eight. "Nigel's prediction was not fundamentally incorrect," says Sinclair with a slight smile, "although it may have been a couple of months adrift.

"We have been very disappointed with the rate at which software is coming out – but that's not due to any lack of effort or enthusiasm.

"It has just taken very much longer than we expected for programmers to come to terms with the 68000 architecture."

"If you look at the first year of the Spectrum the only software which came out for it were conversions of existing ZX81 programs. That was easy because the two machines used the same processor and people were already familiar with the Z80. Even so it took a year before original titles began to appear for the Spectrum."

Unfortunately for Sinclair – and Apple for that matter – Z80 or 6502 programs cannot be converted for 68000. There is no choice but for programmers to start again from scratch.

The 68000 series is proving quite difficult for them to come to terms with – its increased complexity and power combined with the multiplicty of Acorn programing options available makes good 68000 code writing quite daunting. More expensive software development tools are also needed.

"Most of the British Z80 or 6502 programming houses just do not have the wherewithal to get into the 68000 game.

"As a result the really startling software being developed for the QL is coming from some unlikely sources.

"It is happening," he stresses, "it's just taking longer than anyone expected." At a meeting of potential overseas distributors for the QL two weeks ago Sinclair was able to show 33 of its own programs including all the 25 or so titles already announced by Sinclair and others. Most are languages or program development aids. "I do see a need for very sophisticated games – we have some really brilliant mind-blowing adventures on the way." Another package planned to be released arises out of Sinclair's 5th generation research effort on natural language. A program written in Pascal – which fits on one microdrive – has been developed which will translate from English to French – you type in the English and it throws back the French equivalent. It works by breaking the English down into its own 'core' language and then out into French – although a program to do the same for any other language would be just as easy. Some work is still needed but Sinclair hopes to have it out this year.

Increasingly, new Sinclair products are influenced by the course of research being carried out by the company's fifty-strong team at Metalab. Its main areas of effort are in display technology, wafer scale integration, bi-polar semiconductor fabrication (which Sinclair intends to set up his own plant to manufacture) and artificial intelligence.

The first product from Sinclair's wafer scale integration researches is to appear before the end of this year – and absolutely fascinating it is too.

Sinclair plans to produce a 0.5 megabyte solid-state equivalent of a Winchester hard disc unit. "It does what a Winchester does only hundreds of times faster, yet it will be extremely compact plugging into the QLs Ram expansion slot, about the same size as any other Ram board. It doesn't even need its own power supply – it gets that from the QL.

"The box you plug in will contain all the necessary control software on Rom on the board, and the whole thing will cost £300-400." First test wafers will be produced by the device's UK manufacturer very shortly and Sinclair expects the product to be available so soon that he is now having second thoughts about releasing a Winchester disc interface already developed by the company for the QL. "For most people, the solid-state device will be quite sufficient," he says.

He is not the first person, by a long chalk, to attempt production of wafer-scale integration devices (single chips up to several inches in diameter) but the QL peripheral will be a world first. "We are ten years ahead of our competitors in this field – most are only now coming round to wafer-scale devices." Previous unsuccessful attempts to produce such huge – by electronics standards – semiconductor devices have used complicated systems of 'fuses' to connect up the good parts of such a device – missing out the bad portions. Sinclair's device – based on research by former ICL engineer Ivor Catt – uses a deceptively simple technique. The wafer – a standard 4-inch wafer similar to those used to produce several hundred Ram chips at a time – is divided into blocks. The device itself sorts the good blocks from the bad, starting from the controller end of the board with each block checking its neighbours. The active part of the wafer spreads out rather like branches of a tree from the trunk.

The other major area of research for Metalab – "the best research team in the world," according to Sir Clive – is in flat screen display, glass and screen phosphor research.

After Sinclair's flat screen portable TV – finally beginning to go into mass production – Metalab's team is working on far larger flat screens and, ultimately a very large-scale high resolution flat colour display.

Although the latter may be still some way away, Sinclair plans the next major development – a high resolution, full-size (around eight-inch) monochrome screen – to be incorporated into its new portable computer, due for launch in 1986. Sir Clive shrugs off competition from large scale liquid-crystal displays. "Liquid-crystal is rubbish – and nobody pursuing that avenue is getting anywhere. Nobody in the world has an answer to the flat display problem – except us. Our screen will be a proper light-up display."

For Sir Clive the future of computing lies in portable machines. "We have to come up with a portable which people will be happy to use as their only machine – so that they won't have need of any other. Swapping files from one machine to another is just not on – the data has to be in there all the time."

The machine Sinclair plans will be based around the design of the Spectrum – use the Z80 processor, be Spectrum software compatable and probably use microdrive.

Here any similarity with the Spectrum ends. It will incorporate the new flat display and its substantial memory will be expandable using 64K bank-switched blocks of memory. The machine will also feature a substantial Rom featuring a number of built-in software packages – the 'essentials' – word processing, a database-package, and so on. It could even take a plug-in solid-state 'Winchester'.

A pattern is beginning to emerge from the directions that Sinclair's various researches are taking the company. Sir Clive believes that the company to produce the first truly *portable* computer will dominate the world computer market and he plans for it to be Sinclair that does it.

Flat-screen displays, a Winchester smaller than an ordinary paper-back book and not that much heavier, and a disc drive equivalent which is startlingly light and not much bigger than a standard audio cassette – just pieces of Sir Clive's ultimate jigsaw computer.

Never let it be said that Sir Clive is not ambitious.



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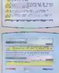
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Speed of reaction is one thing. In
Jasper you must also think fast and
plan accurately.

Letters

Work for idle hands

There is presently much speculation about the future of the home/personal computing business. The seasonal lack of 'positive' news inevitably causes idle hands to the Devil's keyboard work.

At the April 1984 launch of the Amstrad CPC464 range, our chairman Alan Sugar reminded the assembled throng that the future of consumer computing was moving away from the specialist fringe towards mainstream consumer principles, together with mainstream consumer manufacturing needs.

Coleco's departure from the market at the start of the year was the first in a series of moves that bear out that prophecy.

So consider a future where consumer electronics principles apply, and consider just how ineffectively the home/personal computer market has managed to address itself to the consumer as opposed to the enthusiast. MSX seems to have shot itself squarely between the toes because it tried to launch itself through a justifiably sceptical specialist press.

Wait until some bright firm produces some products with genuine consumer 'acquisition justification/rationalisation' that manages to bridge the chasm between the present saturated specialist market and the untapped 'genuine' consumer market.

Guess who my money is on.

William Poel
Amsoft
Brentwood House
169 Kings Road
Brentwood
Essex

You mean the CPC664?

To sell or not to sell

As the owner of a QL I found the lead story in this week's edition of your magazine most disturbing.

This is particularly so, when together with the gloomy forecast for my computer you also report the imminent arrival of the new Tramiel influenced, Atari business machines.

When I ordered my QL it was on the promise of a well supported reasonably priced machine that I could use in my small business.

Now less than twelve months later rumours are rife that the QL is about to have its microdrives removed. In view of the fact that ICL did not find QDOS satisfactory for the OPD I wonder whether on a new machine this too will be change do making my current software incompatible.

Basically my question is this, would I not be well advised to sell now, while I can get a reasonable price for a doomed machine, and buy an Atari when it becomes available, or are the reports of the departure of the QL much exaggerated and would I be better off just buying a set of disc drives.

I G Newman
24 Bishops Close
Arkley
Herts

In the interview with Sir Clive in this issue he says there is no question of a 'new' QL either without microdrive or with a new operating system.

I would be very surprised to see any Atari ST machines on sale over here before the summer.

CES – an anaesthetic

Re your Readers' Poll results. Why wasn't there a section in the poll for the most boring magazine article? The Readers' Poll would have won hands down.

Closely followed by those incessant CES reports (was it really that long since we had the last one?) Both items had me comatose in seconds.

Neill Gudgin
2 Keswick Avenue
Hullbridge
Essex

We'll be having another CES report in June!

Microdrives put right

With reference to your article about QL support and software (24 January) may we put the record straight.

The expensive part of putting our software on to microdrive is the actual cost of the cartridge, not the duplication, as reported.

We hope that the long promised reduction in the price of microdrives will encourage many more software houses to support the QL.

John Tweedy
Marketing manager
Talent Computer Systems
Curran Building
101, St James Rd
Glasgow

First with the news

In the January 24 issue there was an advertisement offering to up-grade the Spectrum to a Spectrum+ from Sinclair. The news section in the same issue has been on the ball in informing of a price reduction for the up-grade. Well done.

Christopher Hopson
130 Northmoor Way
Wareham
Dorset

Chamber of Horrors

I have been reading *PCW* on and off, (more on than off!) since issue 1 and am greatly enjoying what I read.

However, I have one small objection – the illustrations used with the articles written by your regular contributors.

Just stop a moment and have a look at the *Peek & Poke* page illustration of Phil Rodgers. I am sure that he is a personable sort of cove in real life but that picture frightens you out of a week's growth the first time you come across it. Some of the faces appearing above the *Ziggurat* articles could also cause distress to people of a delicate and sheltered upbringing!

John Jarratt
4 Honeycroft
Welwyn Garden City
Herts

Graphic detector

Here is a routine which allows the *Screen$* command on the Spectrum to detect user-defined graphics.

```
10 POKE 23606,88:POKE 23607,254
20 LET B$=CHR$ (CODE (SCREE$(Y,X))+112
30 POKE 23606,0:POKE 23607,60
```

It works by making the character set point to the user-defined graphics, then adding 112 to the code of the character at the screen position to get the correct graphic character to place in B$.

Jonathan Evans

Survival of Monty

Forgive my impertinence, but I thought it was the ambition of a popular journal such as yours to report impartially on the industry you serve.

Quite frankly, I was amazed to read that you "hope the software companies will stop issuing titles such *Mutant Monty*". Surely the survival/continuation of this industry and indirectly your publications revolves around such games and companies producing them.

I do not expect that every product we send in demands a brilliant review but to finish with the final words 'I am depressed'', suggest that the reviewer is in fact, fed up with his job.

Jeff Raggett
Artic Computing
Main Street
Brandesburton
Driffield
Yorks

MUSIC VOUCHER 4

Keep track

Program *PFS-File* **Price** £119 60 **Micro** C64 **Supplier** P&P Micro Distributors, Todd Hall Road, Carrs Industrial Estate, Haslington, Lancs.

It's gratifying to see that serious applications packages for the 64 are becoming more easily available and more user-friendly

The new markets being opened up by products like *PFS-File* may well prove to be the salvation of the software industry – there can only be a limited market for pure games and the long-term computer users will inevitably be looking for something more At almost £120, *PFS-File* is not a budget item, however

PFS-File is a disc-based utility intended to be used for keeping track of such things as membership records, client lists, invoices, collections and so on. Based on the PFS family and software titles available for the Apple II and IBM PC, it comes with an excellent ring-bound manual in a stout storage box. The unit of information storage is the Form, which can have as much or as little structure as you like For instance, for membership lists you could record Name, Address, Phone, Computer Owned, Interests, and so on. As with all record systems, the complexity of the records is traded off against the number which can be stored Around 1,000 forms seems to be average for *PFS-File*. Forms can be retrieved by searching a number of parameters You could for instance specify the name of the person whose record you want, or you could sort by town, or even by negative attributes – for instance all those records which do not include information as to "type of computer owned" If the item is numerical you can search for amounts above or below a specified point, and you can even search for multiple conditions – "all those members with red hair living in Basingstoke who keep newts" Unlikely, I know, but possible nevertheless

Obviously you can then print out any selection from your records, all quickly and simply with the minimum of control keys necessary

There's an excellent selection of useful error messages, and a good "quick guide" in the manual which saves having to check through a whole chapter to find a minor point There's even an example sheet included which, if you overlook the Americanisms ('zip code'), provides excellent guidance on how to set up Forms for various applications

Though the price is steep for many home users, this package would be invaluable for many clubs and societies We're promised 64 versions of the rest of the PFS software in due course

Chris Jenkins

Telephones

Program *Blagger* **Micro** *Amstrad CPC 464* **Price** *£8 95* **Supplier** *Alligata Amsoft Brentwood House, 169 Kings Road, Brentwood, Essex*

It is ironic that *Blagger* and *Manic Miner* should stand side by side underneath the Amstrad banner because I remember once hearing from some of the Software Projects team how they resented *Blagger* as an aptly named rip-off of Matthew Smith's game ideas

Whatever your feeling about the justice of such a claim there is no doubt that the platform game format is becoming very old hat and new releases of the type are only redeemed by adding sufficiently new twists or humourous touches to the basic formula – for example, the forthcoming *Brian Bloodaxe* by the Edge.

Blagger however was the first such copy and has nothing new to offer at all being an almost exact reproduction of the elements that went into *Manic Miner*, including telephones, conveyor belts and disintegrating platforms

Side by side, there is little to choose between the two Both have twenty screens of comparable fiendishness Being originally designed for the Commodore it is no surprise that *Blagger* has better use of colour and good music but movement of the central character is poorer than in *Manic Miner* and it lacks the letter's sense of humour.

Still, people who still own a working Spectrum will not want to pay for another copy of *Manic Miner* and *Blagger* represents a good buy giving you twenty new screens to conquer

Tony Kendle

Black-hearted

Program *Time Traveller* **Micro** Commodore 64 **Price** £8 95 **Supplier** Authogenic, PO Box 88, Reading, Berks

This is, say Authogenic, an "adventure in time and space with graphics, sprites, music and sound" You wake up in what seems to be a space ship of some kind and your very first job is to find out who you are and what you're doing there No adventurer of any experience should have any trouble at all doing that

It seems that Poor Old Father Time is in a bit of a tizzy Back in 1639 the evil Graf Von Schwarzherzen broke the old boy's magical hourglass as part of a dastardly plot to gain control of Time If the balance is to be restored, you must go in quest of the essential ingredient for a repaired hourglass Having got yourself a name and heard the full tale of woe (I've only given you some of the details, you'll need to find the rest of the instructions yourself) you have to figure out how to operate the available equipment so as to get out (the ship is in deep space) and find the necessary commodity despite the wiles of the sinister Graf.

You can really use a time machine while this game is loading, it takes over 10 minutes (and only loaded on the 12th attempt) and when you "quit" you have to reload before starting again. Instructions are verb/noun and although the game does seem to have a fair vocabulary you'll need a lot of guesswork in some locations

Graphics are not too elaborate, but adequate with the pleasant facility of displaying of removing objects as you take or drop them. The music is a repetitive chunk of what sounds like an Israeli folk dance It won't rank amongst my favourites, not least because of the loading time, but it's a reasonably good middle-ranking adventure and Audiogenic are offering three of their Koala Pad graphics aids as prizes for solving it.

Barbara Conway

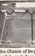
Unseeded

Program *Centre Court* **Micro** Amstrad CPC 464 **Price** £8 95 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF

There is no way that this program is going to avoid comparison with Psion's *Match Point* for the Spectrum but I'm afraid that in my mind the Amsoft attempt isn't even seeded, which is a shame because it could easily have been excellent

To start with there is a nicely animated title screen of a ball bouncing on a tennis racket and the game looks like the Psion one, only with a side-on view of the court. Animation is not quite so good, with no ball boys, and ball movement is a bit slow, but to be fair it has to be to give you a chance to line up your player Hitting the ball is easy, enjoyable even, and the outcome depends on your proximity to it when you take a swing You soon get the hang of being able to send shots roughly where you want them – with the lamentable exception of at the programmer's head

Why? Well I'll give them the benefit of the doubt that



the choice of keys has to be so awful and bunched up because sometimes you want to fit two people on the key board at once, although user-definable keys would have been nice It would also have been nice if they had mentioned that the keys to use are on the numeric pad and not the main *Qwerty* board, although I agree it is a minor point I'll even accept that it wasn't a bug that made the program crash the first time I played it and completely reset the computer the second time after all bad tapes do slip out occasionally But I found it inexcusable that, after loading the third time, I made the error of selecting a demo mode only to discover that nowhere on screen or in the inlay did it mention how to return to the option to play a game

After fruitlessly pressing keys I left it to see whether the demo would end It didn't, 57 minutes later I turned it off to load again Whatever happened to user friendliness?

Tony Kendle

Amusing hero

Program *Finders Keepers* **Micro** Spectrum 48K **Price** £1 99 **Supplier** Mastertronic, Park Lorne, 111 Park Road, NW8

After originating the pocket-money program Mastertronic too often fell down with substandard offerings Recently though things have improved and this latest product is so ludicrously cheap you may feel tempted to complain that it's *underpriced*

Coming within the category of 'arcade adventure' with more justification than many pretenders to the title, this has a storyline, a wealth of scenes, super-smooth animation and fast scrolling in the two mazes

There's even a variety of actions Don't just move in the usual directions but use initial keys to *Examine*, *Get* or *Trade* – though I've yet to succeed in the last one.

You can choose between collecting treasure for the King and joining the Polygon Table, or keeping it for yourself and finding the nearest exit. Either way there's a lot to map and plenty to discover Strategy's called for as some strength loss is unavoidable, but minimise it because it doesn't take too long to lose a life

Sound is rather thin and some hazards seem a little too deadly but Magic Knight is an amusing hero Normally the highest rating only goes to games which demonstrate innovation, but while this is not the *ultimate* available it does mark a bargain price breakthrough Find it and you'll want to keep it.

John Minson

Don't panic

Program *The Hitch-Hikers Guide to the Galaxy* **Micro** Apple II **Price** £49 60 **Supplier** Infocom, c/o Softsel, Central Way, North Feltham Trading Estate, Feltham

You've read the book, bought the records, watched the series, now play the game – Douglas Adam's famous lunatic ideas have been converted onto the computer and for a change a good idea has been implemented well The conversion has been done by the American house Infocom, with close liason between Adams himself and the programmer, producing a terrific text adventure capturing the feel of the original Currently it's available only for the Apple II, at a hefty £50 or thereabouts – though a cheaper Commodore 64 version is expected shortly A plus/4 version is also planned by Commodore itself

The program is pretty huge, containing an 800-odd word vocabulary, with all the data stored on disc Infocom use the Hobbit-style of command interpretation, allowing complex sentences and communication between characters in the game To do this, the game relies heavily on disc accesses after each command, so don't expect the C64 version to run very quickly on the 1541 drive You can also consult the Guide about anything you like, and its database seems to be pretty large, and contains numerous subtle clues

You play the role of Arthur Dent, and you have to get off the Earth before the Vogons destroy it. Next, you get thrown off the Vogon ship that rescued you, and very improbably get picked up by the Heart of Gold What happens after this is a mystery to me, as I'm stuck there, having met Ford, Trillium, Zaphod, and of course Marvin, the paranoid

Amongst the various objects included with the program is a pair of (black) peril sensitive sunglasses, a *Don't Panic* badge, as well as other trivia

This is certainly the most enjoyable text adventure I have ever played faithfully re-creating the feel of the manic humour of Adams – British C64 owners may object to the Apple price though.

Andy Pennell

Note well

Program *Music Maker* **Micro** BBC B **Price** £9 00 **Supplier** FSoft Sound Systems, PO Box 35Z, Brighton BN1 3AY

F-Soft's *Music Maker* package, not to be confused with Commodore's clip-on keyboard for the C64, is the latest attempt to turn the BBC B into a musical instrument – a role which in some ways it is not particularly suited to play

The tape or disc-based program does have some interesting features

On loading, the first routine, *The Sound*, allows you to pull in preset sounds or define your own within the limits of the Beeb's sound chip You can store and recall up to 16 sounds which can be played in three-note polyphony from the Qwerty keyboard. The presets are fairly predictable, some instrumental and some more synthetic, such as the wobbly *Star Wars* and Arpeggio sounds A function card indicates the roles of the top row of keys, which allow you to set the envelope shape and other parameters for the sound you're devising

The second main section, *The Player*, displays notes played on a musical stave, and allows you to split the keyboard so that different sounds play on different areas of the keyboard You can also pull in a range of preset rhythm tracks, or switch on a metronome sound to time your playing

You can also define your own rhythms up to 1024 beats in length, or use a similar composition routine to record three sequences of notes

which can be edited in the *Editor* section

The manual, which is adequate though uninspired, includes suggestions for wiring up an audio output, input, and volume control on the Beeb so that you can plug into a hi-fi amp.

A valiant attempt to turn the BBC into a synthesiser/sequencer/rhythm machine, hampered by the machines relatively nasty sound chip

Nevertheless, for people interested in music on the BBC it wouldn't be a bad point to start You can always upgrade to Acorn's Music 500 system later

Chris Jenkins

Dead ends

Program *Splat!* **Micro** Amstrad CPC 464 **Price** £8 95 **Supplier** Incentive/Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF.

Argh! No! Look out. Splat!! Back in the days before Spectrum software became so sophisticated that it takes between a day and a week to work out what is going on, back when your mum was still reasonably interested in the new toy rather than regarding it with sullen resentment, there were two games in particular that epitomised innocent family fun and prompted much hilarity around the TV screen. One was Imagine's *Jumping Jack* and the other was, of course *Splat!* by Incentive

It's therefore good to see it appearing on the 464 and I can recommend it as one of the few games that are truly original

The format is easy to describe – there is a large maze around which are dotted goodies for you to collect, nominally grass in this case, however if you run into one of the screen boundaries you are splatted to death amid much gore

This would be easy to avoid but for the feet – and toes – the catch – that the maze is moving randomly as well You are invariably trapped into dead ends where you can only sit and contemplate your approaching doom It's all frustrating and addictive, but if you do buy this game you will have to suspend your street wise awareness of state-of-the-art computer games because unfortunately there has been no attempt to improve upon the original graphics In fact the 464 version is slightly worse than the Spectrum – the disadvantage of having 16K of screen Ram compared to 6K is that it takes twice as much processing work to scroll the screen and the end result in the case of *Slat!* is not as smooth as I would have liked

Still it's good to see Incentive writing for the 464 and perhaps with luck we will also see the excellent Ket adventure trilogy appearing as well

Tony Kendle

Warp links

Program *Stellar7* **Micro** Commodore 64 **Price** £9 95 **Supplier** US Gold, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY

Your mission in this "simulation" is to save Earth by destroying the Arcturan Empire and its infamous leader Gir Draxon. To ensure the greatest possibility of success, Terran High Command has placed Earth's most sophisticated fighting machine, the Raven, at your disposal Once inside the cockpit of your futuristic tank, there is no turning back.

The screen display is very similar to good old *Battlezone* – all the scenery being presented in 3-D vector graphics. For those who haven't seen *Battlezone*, the 'view-window' shows in outline, what is in front of the tank just as if you were actually seated at the controls A radar can also be used to give details of the Raven's surroundings – particularly where the enemy is hiding Using only a bi-phasal thunder cannon, the Arcturans have to be blasted to infinity The tactics can be very straight-forward, zoom in towards the target and blow it up quick, before it has a chance to fire back However, more sophisticated approaches pay better dividends

One unique feature of *Stellar 7* is the mission briefing This shows all the enemy craft with details like top speed and weaponry so they can easily be identified and destroyed. Information is also available on fuelbays and warp links which give transportation to other planets The fuelbays are useful because the shield and energy levels run down quickly

The best aspect of *Stellar 7* is the excellent graphics used to represent the large number of enemy craft and installations – I think the laser batteries are brilliant A good little instruction manual completes the package Another high standard American game

Tom Hussey

Two trumps

Program *Contract Bridge 85* **Price** £7 95 **Micro** Commodore 64 **Supplier** Alligata Software 1 Orange street, Sheffield S1 4DW

Program *Grand Slam* **Price** £8.95 **Micro** Commodore 64 **Supplier** Serin Software, PO Box 163, Slough, Berkshire SL2 3YY

Contract Bridge has always struck me as being eminently suitable for a home computer With the micro playing the three other hands it can provide valuable practice and it will never hack your shins to bits, nor point out lengthily and mercilessly why you should have ducked at trick two Alligata's *Contract Bridge 85* and Serin's *Grand Slam* are both sophisticated programs of this ilk Both use the Acol bidding system and boast random dealing

Alligata's is an updated version of its original *Contract Bridge* Tony Crowther has spiced up the screen display with colourful user-defined graphics for the card and suit symbols

Grand Slam is an altogether more scholarly looking affair No graphics here, just the Commodore's suit symbols and numbers While not as pretty, Serin's screen is clearer to read and evaluate

On bidding, both programs can use a number of conventions – the Acol two bid, Stayman, pre-empts, take-out doubles and slam conventions

Grand Slam uses the well-known Blackwood for slams, while *Contract Bridge* uses Gerber (which substitutes 4 clubs for the 4 NT invitation bid) *Grand Slam's* Blackwood will also go on to ask for Kings, as I discovered when to my great excitement North – my computer partner – actually *initiated* Blackwood on one hand. And we got it right.

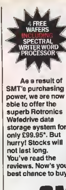
On the card play *Grand Slam* is solid and orthodox It uses conventional leads, though not signalling, and, as I have found to my cost, has been rather well programmed to duck rounds if expedient. I have some dark suspicions about *Contract Bridge* It very much looks as though the East-West hands are played, knowing what exactly what cards are held all around the table, and too many of the suit splits go well against the odds

That having been said, *Contract Bridge* contains two features that would have been nice on the other a re-bid option on the deal, and a replay option on the hands The whole point of computer bridge being for practice, it is interesting to see how different bids or plays at any stage can affect the outcome.

Contract Bridge 85

Grand Slam.

Christina Erskine



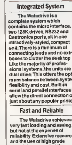
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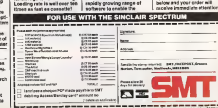
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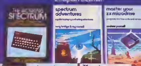
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Hardware Review

Potential

Hardware AMX Mouse **Micro** BBC B/OS 1 2 **Price** £90 **Supplier** Advanced Memory Systems Ltd, Green Lane, Appleton, Warrington WA4 5NG

Normally reviews are easy to plan out because most hardware or software has some obvious fault or limitation, or is grossly over-priced, and thus greatly simplifies the task Have you ever noticed how much easier it is to describe what something cannot do than what it can do? So Advanced Memory Systems can take it as a compliment when I say I found their AMX Mouse very difficult to review indeed!

The package consists of the mouse itself, which plugs into the BBC user port, a single Rom containing the necessary software to use the mouse, additional software on cassette or disc, and two manuals The manuals cover the main operating software provided on Rom and a picture-drawing package, appropriately called *AMX Art*. The mouse itself is a small black plastic object with three red buttons Underneath is a steel ball which is free to rotate in any direction. When used on a suitable non-slip surface the ball will rotate when the mouse is moved and this is detected by the Rom software and used to move a pointer on the screen display.

It is possible to use the mouse simply as a replacement for, say, the keyboard cursor keys used in commercial word-processing software to provide a quick and convenient means of program control At the other end of the scale, you can use the AMX Rom routines to set up windows, icons (little representations of disc files, printers, and so on), and pointers (special icons which can be moved around under the control of the mouse) for use in your own programs

An excellent example of the possibilities is included in the package in the form of the *AMX Art* program With this up and running you suddenly get the impression that you are no longer using a BBC but have suddenly been shifted to an Apple Macintosh. In fact this drawing program has proved so popular with most users and reviewers that most comments centre on its features alone, and discussion of icons and all the rest of it go out the window (I just couldn't resist that pun)

Art is a freehand painting program Use the mouse to select the type of line you want (line, paint spray, rubber, or paint roller) and away you go. You can select different line thicknesses, different fill patterns, use the rubber to remove parts of the picture, put in text of various types, and so on All these options are selected using the mouse You can save the picture to disc or tape, send a copy to an Epson-compatible printer through either the serial or parallel interfaces (disc owners can use their own screen dump routine for other printers), use the BBC * commands (for example, to catalogue a disc), produce circles, draw boxes, draw with dotted lines . . . get the idea? *AMX Art* is fun. In addition, it is one of the few pieces of software which seems to impress people who normally switch themselves off when you mention computers

There are of course limits to what you can do using *AMX Art* Some of these are important if you want to use the software for serious work. You cannot enlarge (zoom in on) areas of the screen to concentrate on the detail. You cannot draw to precise co-ordinates nor read co-ordinates from a drawing, thus engineering drawings are not really feasible. You cannot pick up and move/copy elements of the picture Lastly, you cannot use colours, just various patterns to create different shading effects So *Art* remains a freehand only program, but gives you a very good idea of just how effective the mouse and the Rom software can be The simplicity of the program and the brief but clear manual make *AMX Art* a pleasure to use, but watch for limitations to serious use

The mouse is more than just a fancy paintbrush however With suitable software, which for the moment you have to write yourself, you can produce a system which is much quicker and easier to use than the normal keyboard-only one. Imagine being able to get a disc catalogue at the flick of a switch, to select a program with another flick, or select a Rom, send a file to a printer, use a calculator, find out how much memory is free and where, or write yourself a memo all just by moving the mouse to select an option and then pressing a switch. Such a system should be much

Good value

Hardware *Gunshot Joystick* **Micro** Most (requires Atari-type joystick connector) **Price** £8 95 **Supplier** Tigress Marketing, 127 Fawe Park Road, Putney, London SW15

Unless you happen to be one of those obsessives with a Habitat approach to joysticks, in which how macho it looks, what colour it is, and how thrustingly technical it seems, is important all you really want to know about any new joystick is how responsive it is, how tough is it and the price

The Gunshot costs £8.95 which is pretty cheap, it looks OK too with a smooth two tone white/grey base and grey handle You get two fire buttons one on the top of the joystick the other on the base although I never found a use for the latter. The base comes with suckers to fix it firmly to any smooth surface

In the matter of response it's difficult to criticise joysticks effectively, it's more a question of what you prefer.

For my money the Gunshot is a bit sluggish, movements have to be very definite – push far forward, pull far back to get a response Other people get irritated by joysticks which respond to



the slightest nudge You pays your money

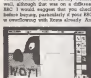
The Gunshot does, however, feel somewhat flimsy, I wouldn't be very happy about playing endless sessions of *Track and Field* on it but that's just an impression. It didn't actually let me down at all, and for the price it's certainly good value

Graham Taylor

faster and easier to use than a menu-driven system manager and certainly easier than using the standard BBC operating system. Advanced Memory Systems is working on a program called *Desk Top Manager* which will give you many of these features. If it's up to the standard of *AMX Art* then it will be well worth getting.

I had a few problems with the review software as it tended to interfere with other Rom packages. I think this was because the software I was given was not the finished product as the production version which I tested briefly worked well, although that was on a different BBC. I would suggest that you check before buying, particularly if your BBC is overflowing with Roms already. Another point is that your machine should really be a Model B with Operation System 1.2.





I found the main *Mouse* manual less helpful than the *Art* manual. Although the commands provided by the Rom software are explained simply together with the aid of example programs, there is no help available if things do not go as you expect them to and there is no real indication of what you can do with the software in a practical sense. The lack of guidance when things do not work is a serious omission. Less experienced BBC users will almost certainly have problems at first and the manual should provide sufficient information to help them out.

All in all I enjoyed using the AMX Mouse and am impressed with the quality of hardware and software. It offers great potential for expansion, but for the moment you are left somewhat on your own to exploit that potential. Children and non-computer users seem to take naturally to the thing and I can imagine mice becoming very popular for use in games and serious software.

John Cochrane


PSYCHEDELIA



Vulcan

Battle your way through four screens of arcade action for the BBC B with Vulcan by Roger Isaacs

In this multi-screen game for the BBC you must first fly your ship into the red cross-shaped targets and try to reach a score of 1850 before leaving Sheet 1 by flying off the bottom of the screen. Collision with the green 'Magnetic Bubbles' causes you to 'Bounce'. Avoid the two white mines. On Sheet 2, fly down to the bottom of the screen avoiding the mines and the mountains. In Sheet 3, fly down the tunnel to the bottom of the screen, to Sheet 4. There you must land on the pedestal as gently and quickly as you can. This transports you to a harder Sheet 1 and so on.

The controls are Left Thruster – Key 1, Right Thruster – Key 0, and Vertical Booster – Space Bar.

Program Notes
Variables

XY –	x and y co-ordinates for magnetic bubbles
YX –	x and y co-ordinates for red crosses
grav –	increase in gravitational field, incremented after every screens
a –	gravity variable
b –	dummy variable
c –	dummy variable
d –	no of mines at each screen altitude
e –	a flag (if e = 1 then bubbles are redrawn)
f –	no of red crosses left on screen at any time
g –	your x co-ordinate increment
gravity –	y co-ordinate increment
x –	x co-ordinate
y –	y co-ordinate
h,i –	scale at and of sheets
xx –	dummy co-ordinate used for rubbing out old spacecraft
yy –	dummy co-ordinate used as above
j –	counter
k –	tunnel x co-ordinate
l,n –	tunnel direction
m –	tunnel y co-ordinate
w –	time elapsed since the start of sheet 4
s –	affects height of mines
aa –	counter
bb –	counter
cc –	counter
dd –	base x co-ordinates for mountains in sheet 2
ee –	counter
ff –	counter
gg –	counter

Line No	
10-120	general program set up
130-150	Sheet 1 set up
160-240	Sheet 1
260-330	Sheet 2 set up
330-390	Sheet 2
410-540	Sheet 3 set up
540-600	Sheet 3
620-820	Sheet 4 set up
830-900	Sheet 4
940-1070	plotting and moving your ship
1080-1140	plots mines
1130-1220	plot bubbles and red crosses
1230-1270	collision check
1280-1330	crash routine
1340-1390	plot Screen 2 mountain
1400-1490	replot remaining red crosses
1500-1540	replot bubbles



```
10REM VULCAN by Roger Isaacs
      COPYRIGHT 1984
20DIMXY(5,2):DIMYX(11,2)
30score=0:grav=-.2
40REPEAT grav=grav+.2
50YX(11,1)=-10:YX(11,2)=-10
60a=1:b=0:c=0:d=5:e=0:f=0
70VDU23,255,195,102,60,255,255,60,102,195
80VDU23,254,0,24,60,102,60,16,40,68
90VDU23,253,28,107,73,127,73,107,28,0
100VDU23,252,124,68,84,68,124,0,0,0
110g=0
120gravity=RND(7)
130MODE2:VDU5
140PROCMAGMEN:PROCSTARS
150x=639:y=1024:xx=x:yy=y
160REPEAT y=y-a*gravity
170VDU18,0,0
180PROCMOVE
190PROCCHECK
200GCOL0,0:MOVE xx,yy:PRINTCHR$(254)
210IFm=1THENm=0:GCOL0,2:PROCMAG
220GCOL0,3:MOVE x,y:PRINTCHR$(254)
230xx=x:yy=y
240UNTILy<5
250FORh=1 TO 2:FOR i=1 TO 255:SOUND17, 15,i
,1:NEXT:NEXT
260
270REM SCREEN 2
280score=score+500
290MODE2:VDU5
300PROCMOUNT
310GCOL0,7:FOR j=1TO d*5:MOVERND(1000)+100
,RND(350)+630:PRINTCHR$252:NEXT
320y=1024:xx=x:yy=y
330REPEAT y=y-a*gravity
340VDU18,0,0
350PROCMOVE:PROCCHECK
360GCOL0,0:MOVExx,yy:PRINTCHR$(254)
370GCOL0,3:MOVE x,y:PRINTCHR$(254)
380xx=x:yy=y
390UNTILy<5
400FORh=1 TO 2:FOR i=1 TO 255:SOUND17, 15,i
,1:NEXT:NEXT
410REM SCREEN 3
420y=1023:MODE2:k=k-100:l=0
430VDU19,7,4,0,0,0
440xx=x:yy=y
450FOR m=1024 TO 0 STEP 4
460n=(f*RND(7)-2)
470IF m/75 = INT(m/75) THEN l=6*(RND(3)-2)
480k=k+l+1
490IF k+300>1200 THEN l=-7
500IF l<0THEN l=7
510MOVE0,m:DRAWk,m:MOVEk+500,m:DRAW1278,m
520NEXT
530VDU5:a=1:gravity=gravity/4
540REPEAT y=y-a*gravity
550VDU18,0,2
560PROCMOVE:PROCCHECK
570GCOL0,0:MOVE xx,yy:PRINTCHR$(254)
580GCOL0,3:MOVEx,y:PRINTCHR$(254)
590xx=x:yy=y
600UNTILy<5
610FORh=1 TO 2:FOR i=1 TO 255:SOUND17, 15,i
,1:NEXT:NEXT
620REM SCREEN 4
630score=score+1500
640MODE2:VDU5:GCOL0,
650o=RND(300)+100:p=o+100
660GCOL0,128:CLS
670FOR j=1TO d*5:MOVERND(1000)+100,RND(500
)+600:PRINTCHR$252:NEXT
680q=0:500
690FOR r=0 TO 500 STEP4
700MOVE(q+r),r:DRAWo,r
710NEXT
720FOR s=o TO p
730GCOL0,6:MOVE s,500:DRAW s,0
740NEXT
750GCOL0,7:t=(1278-p)/500
760FOR u=0 TO 500 STEP4
770MOVEp,500-u:DRAW (t*u)+p,500-u
780NEXT
790y=1023:gravity=gravity/16
800x=1100:yy=y:a=1
810v=500
820w=255
830REPEAT y=y-(a*gravity)
840score=score-1:SOUND17, 15,w,1:w=w-.5
850VDU18,0,7
860PROCMOVE:PROCCHECK
870GCOL0,4:MOVExx,yy:PRINTCHR$(254)
880GCOL0,3:MOVEx,y:PRINTCHR$(254)
890xx=x:yy=y
900UNTILPOINT(x,y-11)=6 OR POINT(x+32,y)=6
OR POINT(x+56,y-10)=6 OR POINT(x+8,y-29)=6 OR
POINT(x+46,y-32)=6
910score=score+700
920FORh=1 TO 2:FOR i=1 TO 255:SOUND17, 15,i
,1:NEXT:NEXT
930UNTIL0
940DEF PROCMOVE
950VDU4:COLOUR5:PRINTTAB(0,1),score:VDU5
960IF INKEY(-49) THEN g=g-1:SOUND1, 15,100,
1
970IF INKEY(-40) THEN g=g+1:SOUND1, 15,100,
1
980IF INKEY(-99) THEN gravity=gravity-.8:SO
UND0,-15,5,1 ELSE gravity=gravity+.4*grav
990IF g<-7THENg=-7
1000IF g>7THENg=7
1010IFg=0THENg=g+1
1020x=x+g
1030IFx>1277 THEN g=-g
1040IFx<64 THEN g=-g
1050IFy>1024 THEN gravity=.8
1060x=x+g
1070ENDPROC
1080DEF PROCSTARS
1090FORcc=100 TO 600 STEP100
1100FORaa=1TOd
1110GCOL0,7
1120MOVERND(1100)+100,RND(cc)+500:PRINTCHR$252

1130NEXT:NEXT
1140ENDPROC
1150DEF PROCMAGMEN
1160FOR bb=1TO5:GCOL0,2:XY(bb,1)=RND(1000)+1
00:XY(bb,2)=RND(700)+100:MOVEXY(bb,1),XY(bb,2
):PRINTCHR$(253)
1170NEXT
1180FORcc=1TO10
1190YX(cc,1)=RND(1000)+100:YX(cc,2)=RND(700)
+100:MOVEYX(cc,1),YX(cc,2)
1200GCOL0,1:PRINTCHR$(255)
1210NEXT
1220ENDPROC
1230DEF PROCCHECK
1240IF POINT(x,y-11)=7 OR POINT(x+32,y)=7 OR
 POINT(x+56,y-10)=7 OR POINT(x+8,y-29)=7 OR P
OINT(x+46,y-32)=7 THEN SOUND0,-15,100,10:PROC
CRASH:RUN
1250IF POINT(x,y-11)=1 OR POINT(x+32,y)=1 OR
 POINT(x+56,y-10)=1 OR POINT(x+8,y-29)=1 OR P
OINT(x+46,y-32)=1 THEN SOUND 1,-15,250,1:sco
re=score-100*(f+10):PROCMEN
1260IF POINT(x,y-11)=2 OR POINT(x+32,y)=2 OR
 POINT(x+56,y-10)=2 OR POINT(x+8,y-29)=2 OR P
OINT(x+46,y-32)=2 THEN gravity=gravity*(g=-1):
SOUND1, 15,0,1:m=1
1270ENDPROC
1280DEFPROCCRASH:VDU4:CLS
1290PRINT
1300PRINT"     YOU HAVE JUST      BLOWN UP

1310PRINT"        AND SCORED"        ;score;" P
OINTS"
1320PRINT"   "Press RETURN for    another go"
:REPEAT UNTILGET=13
1330ENDPROC
1340DEF PROCMOUNT
1350MOVE0,0:GCOL0,7
1360dd=RND(600):DRAWdd,0:DRAWdd/2,400:PLOT85
,0,0
1370MOVEdd+100,0:DRAW1278,0:DRAWdd+100+(dd/2
),400:PLOT85,dd+100,0
1380GCOL0,0:MOVEdd,0:MOVEdd/2,400:PLOT85,dd+
100,0:MOVEdd+100+(dd/2),400:MOVEdd+100,0:PLOT
85,dd/2,400
1390ENDPROC
1400DEF PROCMEN
1410f=f+1
1420IFf>11THENENDPROC
1430FORee=1TOf:GCOL0,0
1440MOVEYX(ee,1),YX(ee,2):PRINTCHR$(255)
1450NEXT
1460FOR ff=f TO 10:GCOL0,1
1470MOVEYX(ff,1),YX(ff,2):PRINTCHR$(255)
1480NEXT
1490ENDPROC
1500DEF PROCMAG
1510FORgg=1TO5
1520MOVEXY(gg,1),XY(gg,2):PRINTCHR$(253)
1530NEXT
1540ENDPROC
```



MSX
SLIDE O.K.
RULE
APATHY
SPANISH PUNKS RULE OLE!
MSX BASIC REVEALED

Watching the clock

Do you loose track of time slaving over a hot QL? Ed Peach provides a solution with Alarm.

The ease with which you can program using a good 68000 assembler, and the built in power of the QDOS routines makes it a simple matter to build powerful extensions to Super-Basic.

The following routine provides a multi-tasking clock running in the background to your programs, as well as an alarm clock which can be accessed from Basic with a statement of the form – *Alarm hours, minutes (eg, Alarm 22,59)*

For those of you already into 68000 code, this routine uses the standard QDOS *Trap* calls to, first of all, set up a job containing the alarm-clock routine, preserving the start address of this job so that the Basic procedure defined afterwards knows where to store the alarm time. Then it transfers the Alarm-clock code into the job, before setting up the Basic procedure and activating the Alarm-clock.

As you will note, the Alarm-clock routine senses whether the display is in monitor or TV mode and adjusts the display accordingly. If you don't like the position of the clock, this can be adjusted in the *Data* statements, (after checking the accuracy of your typing!) in the following way:–

1500 *Data* 0,7,0,84,0,12,*x* hi-bit,*x* lo-bit,*y* hi-bit,*y* lo-bit

1510 *Data* 0,106,0,12,*x* hi-bit,*x* lo-bit,*y* hi-bit,*y* lo-bit,80,114

Don't forget to adjust or remove Line 180 if you do this! Be careful to save your program before running it as the code is destroyed by a *New* statement when run.

I hope you find this program a useful way of limiting the hours you spend pounding the QL's keys!

```
100 REMark BASIC Alarm procedure -
    by Ed. Peach
110 RESTORE
120 CLS
130 TOTAL=0
140 FOR n=0 TO 560
150         READ pcode
160         TOTAL=TOTAL+pcode
170 END FOR n
180 IF TOTAL <> 39386 THEN PRINT "Er
    ror in DATA statements" : STOP
190 RESTORE
200 X=RESPR(560)
210 base = RESPR(0)
220 FOR n=base TO base+560
230     READ pcode
240     POKE n,pcode
250 END FOR n
260 PRINT:PRINT
270 PRINT "Alarm successfully
     installed !"
280 PRINT "Type 'ALARM hour,minuts'
     to set alarm"
290 CALL base
300 PRINT:PRINT:PRINT
310 PRINT "HAVE YOU SAVED THIS PROG
     RAM ?"
320 PRINT "Press any key except CTRL-
     SPACE": PRINT "performs NEW"
330 PAUSE
340 NEW
```

```
1000 DATA 114,0,36,60,0,0,1,100,147,201
1010 DATA 22,60,0,96,112,1,78,65,73,250
1020 DATA 0,180,40,129,67,250,0,178,36,60
1030 DATA 0,0,1,99,16,217,81,202,255,252
1040 DATA 67,250,0,22,52,120,1,16,78,146
1050 DATA 16,60,0,10,116,1,118,0,78,65
1060 DATA 66,128,78,117,0,1,0,14,5,65
1070 DATA 76,65,82,77,0,0,0,0,0,0
1080 DATA 72,231,255,252,73,250,0,114,34,20
1090 DATA 116,0,46,60,0,2,78,65,208,252
1100 DATA 1,70,46,8,52,120,1,18,78,146
1110 DATA 102,56,48,60,255,241,12,67,0,2
1120 DATA 102,46,58,54,152,0,56,54,152,2
1130 DATA 32,110,0,0,84,72,34,72,97,0
1140 DATA 0,30,58,4,97,0,0,24,38,71
1150 DATA 54,182,152,0,38,71,84,75,54,182
1160 DATA 152,2,76,223,63,255,66,128,78,117
1170 DATA 85,73,12,69,0,9,110,0,0,10
1180 DATA 29,188,0,48,136,0,82,72,61,133
1190 DATA 152,0,52,120,0,242,78,146,78,117
1200 DATA 0,0,0,0,157,206,79,250,1,160
1210 DATA 67,250,1,30,52,120,0,200,78,146
1220 DATA 73,250,1,48,40,136,112,45,50,60
1230 DATA 0,0,52,60,0,0,54,60,255,255
1240 DATA 78,67,112,19,78,65,67,250,1,56
1250 DATA 52,120,0,236,78,146,73,250,1,12
1260 DATA 32,84,112,7,118,255,52,60,0,8
1270 DATA 210,252,0,14,36,73,71,250,1,0
1280 DATA 54,218,82,74,22,216,22,218,78,67
1290 DATA 112,17,114,0,78,67,71,250,0,232
1300 DATA 52,19,69,250,0,230,181,75,109,82
1310 DATA 110,4,181,75,109,76,67,250,0,200
1320 DATA 73,250,0,204,32,84,48,60,0,7
1330 DATA 52,80,0,8,78,67,112,17,114,0
1340 DATA 78,67,46,60,0,17,71,250,0,120
1350 DATA 78,65,112,17,71,250,0,134,78,65
1360 DATA 2,1,0,32,103,242,112,17,71,250
1370 DATA 0,116,78,65,71,250,0,154,38,188
1380 DATA 50,53,54,48,118,255,48,60,0,32
1390 DATA 76,67,18,60,0,255,20,60,0,255
1400 DATA 112,16,78,65,75,250,0,60,26,21
1410 DATA 186,1,103,38,26,129,73,250,0,108
1420 DATA 32,84,118,255,112,32,78,67,12,21
1430 DATA 0,8,103,6,67,250,0,66,96,4
1440 DATA 67,250,0,68,114,7,116,1,112,13
1450 DATA 78,67,112,8,114,255,118,5,147,201
1460 DATA 78,65,96,0,255,34,0,0,10,8
1470 DATA 255,255,170,170,2,8,0,4,0,0
1480 DATA 4,4,1,0,1,0,11,0,1,0
1490 DATA 9,1,0,0,0,0,0,2,7,1
1500 DATA 0,7,0,54,0,12,1,182,0,0
1510 DATA 0,106,0,12,1,132,0,0,60,114
1520 DATA 101,115,115,32,70,53,0,0,0,0
1530 DATA 50,53,54,48,0,0,0,0,0,0
1540 DATA 0,0,0,0,0,0,0,0,0,0
1550 DATA 0,0,0,0,0,0,0,0,0,0
1560 DATA 0
```

A reformed character

An unusual user-designed character generator program which re-writes itself - by **Tony Dexter**

Programmers who choose to design user defined graphic characters by pushing a cursor around the screen are well served with a host of helpful designer programs. A very useful program of this type was included on the Horizons tape and since then numerous other versions have been published commercially or as listings in books and magazines. If, like me, your designing takes the form of doodling on scraps of paper, then such programs are not ideal. Although I like to plan my UDG characters on graph paper, I do not relish keying in a host of numbers, be they binary or decimal – and all that adding 128 to 32 plus 16 gets pretty tedious if you have more than a couple of characters to establish.

Of course, having designed your character on paper, there is nothing to stop you copying it via one of the Horizon type UDG generator programs but they are not ideal. I find all that moving and changing direction by cursor key, then pressing another key for setting or unsetting a pixel, needlessly long-winded. This program speeds up the entry considerably since it is only necessary to press one of two keys to either *Ink* a pixel or not. There is no moving around since each pixel is auto-prompted in turn. This is not so convenient if you wish to design on screen, but considerably speeds up the entry of pre-designed characters. Your changing designs are constantly shown on screen, and there are facilities for back spacing to a previous pixel, or character, or skipping through the UDGs to any letter.

Lazy by nature, and objecting to any unnecessary typing, I devised a method whereby this program can actually create new program lines of *Data* statements which contain all the UDG information. Once these lines have been created all other lines are automatically deleted, leaving you with a series of UDG *Data* lines which can be *Saved* in the usual way, and then *Merged* with a future program. This is, perhaps, the real power of the program, being a very useful feature not available on similar utilities.

To understand how it works you need to know how program lines are held in memory. This is the area of Ram which starts at the address contained in the System Variable *Prog (23635/6)* and ends just before the address held in the System Variable *Vars (23627/8)*. Chapter 24 of the Sinclair Manual explains how each line of program is held in memory.

Simply stated, two bytes forming the line number are followed by a byte to give the length of the line, followed by the keyword code, the characters following, and then the end of line code. Creating new program lines is simply a matter of *Poke*ing the appropriate sequence of numbers. The major difficulty comes with needing to *Poke* the exact byte-length of each line. If this isn't done accurately then the program will not know where one line ends and another begins, and a hopeless foul-up can result.

The way I chose to tackle the problem was to pre-establish a series of *Rem* lines of more than adequate length for each new line needed. These are Lines 10 to 210. Each line needs 55 or more dots or spaces. The easy way to enter these is to type in the first line, then use the *Edit* facility to repeatedly change the line number.

In use, the program finds the address of each of these *Rem* lines (program Lines 620 to 660), *Pokes* the relevant numbers in place of the dots and then substitutes the code for *Rem* with the code for *Data* (Lines 230 to 330). Since

```
 10>REM .......................
................................
..
 20 REM .......................
................................
.
 30 REM .......................
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..
 40 REM .......................
................................
.
 50 REM .......................
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..
 60 REM .......................
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 70 REM .......................
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..
 80 REM .......................
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 90 REM .......................
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 100 REM ......................
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 110 REM ......................
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 120 REM ......................
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 130 REM ......................
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 140 REM ......................
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 150 REM ......................
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..
 160 REM ......................
................................
..
 170 REM ......................
................................
..
 180 REM ......................
................................
..
 190 REM ......................
................................
..
 200 REM ......................
................................
..
 210 REM ......................
................................
.
 220 GO TO 360
 230 REM DATA CREATION SUBROUTIN
E
 240 CLS : PRINT AT 10,6; FLASH
1; CREATING DATA LINES": GO SUB
660
 250 FOR i=1 TO 21: LET x=l(i):
LET x=x-1: POKE x,234: NEXT i
 260 LET co=0
 270 FOR i=USR "a" TO USR "u"+7
STEP 8: LET a$=""
 280 LET x=i-USR "a": LET x=x+1-
co: LET co=co+7
 290 FOR j=0 TO 7
 300 LET b$=STR$ (PEEK (i+j))
 310 LET a$=a$+    +b$+"" ,": NE
XT
 320 LET a$=a$( TO LEN a$-1)
 330 LET z=l(x): FOR k=1 TO LEN
a$: POKE z,CODE a$(k): LET z=z+1
: NEXT i
 340 POKE z,58: POKE z+1,234: PO
KE l(x)-1,228
 350 NEXT i: RETURN
 360 REM MAIN PROGRAM STARTS
 370 FOR L=USR "A" TO USR "U" ST
EP 8
```

each *Data* line will be of variable length, as soon as the relevant numbers have been *Poked* the line is effectively sealed off by *Poking* the code for a colon followed by the code for REM.

This technique for creating new program lines from within a program can have other applications I have used it in a foreign language educational program for example, for teachers to be able to create their own programs while having no knowledge of programming

Once the new lines have been created the program moves to Line 830 This part of the program is designed to delete all the unwanted parts It is also dependant on that important line length factor in this case it counts the bytes from the first line to be deleted It then *Pokes* this byte-length into the first line (first to be deleted)

The result is that the micro is persuaded that the unwanted parts of the program are one enormous line – thus by deleting this one line number the bulk of the program is in fact deleted. All that remain are the UDG related *Data* lines, together with a subroutine for you to use in your own programs

When you are typing in this program, it is important that you do not make any alterations in any lines preceding Line 220 Any additional lines before Line 10, or between the REM lines will corrupt the *Data* line creation part of the program

In use the program is fully prompted at each stage and no additional instructions are necessary.

```
 380 PAPER 7: INK 1: CLS : PRINT
 AT 0,5;: FOR m=144 TO 164: PRIN
T CHR$ m;: NEXT m
 390 LET us=L: LET a$=V
 400 DATA 128,64,32,16,8,4,2,1
 410 DATA "A","B","C","D","E","F
","G","H"
 420 DATA "I","J","K","L","M","N
","O","P","Q","R","S","T","U"
 430 DIM P(8): FOR i=6 TO 13 STE
P 2: FOR j=10 TO 17 STEP 2: PRIN
T AT i,j; INK 4;CHR$ 143; INK 6;
CHR$ 143;: NEXT j: PRINT AT i,18;
"      ": NEXT i
 440 FOR i=7 TO 13 STEP 2: FOR j
=10 TO 17 STEP 2: PRINT AT i,j;
INK 6;CHR$ 143; INK 4;CHR$ 143;:
NEXT j: PRINT AT i,18;"      ": NE
XT i
 450 FOR i=6 TO 13: FOR j=10 TO
17
 460 IF i=6 THEN  RESTORE 410: L
ET COUNT=((L-USR "A")/8)+1: FOR
K=1 TO COUNT: READ A$: NEXT K: P
RINT AT 15,12; USR "";A$: RESTORE
 400: IF j=10 THEN  BEEP .5,25
 470 PRINT AT 18,0; INVERSE 1;"C
OMMANDS"; INVERSE 0;" ANY LETTER
=ON SPACE=OFF": PRINT
0 = BACKSPACE
I = NEXT CHARACTER
& = FINISHED"
 480 PRINT AT i,j; FLASH 1;"?"
 490 IF j=10 THEN  IF INKEY$<>""
 THEN  GO TO 490
 500 LET i$=INKEY$: IF i$=""  THE
N  GO TO 500
 510 IF I$="&" THEN  GO TO 650
 520 IF i$="I" AND j=10 AND i=6
THEN  LET us=us+1+2: LET L=L+8:
IF L>USR "U" THEN  LET i$="*": GO
 TO 650
 530 IF i$="I" AND j=10 AND i=6
THEN  RESTORE 400: GO TO 430
 540 IF i$="I" THEN  GO TO 500
 550 IF i$="O" AND j=10 AND i=6
AND L=USR "A" THEN  GO TO 430
 560 IF i$="O" AND j=10 AND i=6
AND L>USR "A" THEN  LET L=L-8: L
ET us=L: GO TO 430
 570 IF i$="O" AND j=10 THEN  LE
T i=i-1: LET us=us-1: GO TO 480
 580 IF i$="O" THEN  LET j=j-1:
IF j=9 THEN  LET j=17: LET i=i-1
: LET us=us-1: GO TO 480
 590 IF i$="O" THEN  GO TO 480
 600 IF i$<>" " THEN  PRINT AT i
,j;CHR$ 143: RESTORE 400: FOR k=
1 TO j-9: READ p: LET P(j-9)=p:
NEXT k
 610 IF i$=" " THEN  PRINT AT i,
j;" ": LET P(j-9)=0
 620 NEXT j: LET PO=0: FOR K=1 T
O 8: LET PO=PO+P(K): NEXT K: POK
E us,PO: PRINT AT i,19;"   ";AT
i,19;PO: LET us=us+1: DIM P(8)
 630 PRINT AT 0,5;: FOR m=144 TO
 164: PRINT CHR$ m;: NEXT m
 640 NEXT i: NEXT L
 650 GO TO 730
 660 REM START OF LINE FINDER
 670 LET a=1: DIM l(21)
 680 LET a=PEEK 23635+256*PEEK 2
3636
 690 IF PEEK (a+4)<>234 AND PEEK
 (a+4)<>228 THEN  RETURN
 700 LET l(b)=a+5
 710 LET b=b+1: LET a=a+4+PEEK (
a+2)+256*PEEK (a+3)
 720 GO TO 690
 730 CLS : PRINT '''' 1) TO SAVE
 THE USER DEFINED          GRAPHIC
S AS CODE."
 740 PRINT '" 2) TO DELETE THIS
PROGRAM AND        CREATE U.D.G. "
"DATA" LINES."
 750 PRINT '" 3) TO RE-START THI
S PROGRAM.
 760 PRINT "  4) TO FINISH."
 770 PRINT  FLASH 1;AT 17,0;"
     PRESS A NUMBER            "
 780 IF INKEY$<>"" THEN  GO TO 7
80
 790 LET i$=INKEY$: IF i$="" THE
N  GO TO 790
 800 IF CODE i$<49 OR CODE i$>52
 THEN  GO TO 790
 810 IF i$="4" THEN  CLS : STOP
 820 IF i$="3" THEN  CLS : GO TO
 360
 830 IF i$="2" THEN  GO SUB 240:
 GO TO 880
 840 IF i$="1" THEN  CLS : PRINT
 AT 10,0;"PLEASE TYPE IN A NAME
FOR THE    CODE TO BE SAVED.
          THEN PRESS <ENTER>."
 850 INPUT "up to 10 letters";t$
: IF LEN t$>10 THEN  LET t$=t$(
TO 10)
 860 CLS : PRINT AT 10,0; THE CO
DE WILL BE SAVED AS:        "";t$
;"" CODE USR "a",168"
 870 SAVE t$CODE USR "a",168: GO
 TO 730
 880 CLS : PRINT AT 10,0; FLASH
1;"       DATA LINES COMPLETED
     PREPARING TO DELETE PROGRAM
     "
 890 LET start=220: LET end=9998
: LET n=23755
 900 IF 256*PEEK n+PEEK (n+1)>=s
tart THEN  GO TO 920
 910 LET n=(n+3+PEEK (n+2)+256*P
EEK (n+3)+1): GO TO 900
 920 LET eb=n+2: LET en=-4
 930 LET e=PEEK (n+2)+256*PEEK (
n+3): LET en=en+e+4
 940 LET o=(256*PEEK n+PEEK (n+1
)): IF o<end THEN  LET n=n+3+e+1
: GO TO 930
 950 IF o>end THEN  LET en=en-e-
4
 960 LET o=INT (en/256): POKE (e
b+1),o: POKE eb,en-o*256: POKE (
eb+2),234
 970 CLS : PRINT AT 10,0;" TYPE
220 AND PRESS <ENTER>       TO DE
LETE THIS PROGRAM AND       LEAVE
 U.D.G. DATA LINES TO BE    USED
IN YOUR OWN PROGRAM."
 980 STOP
 990 SAVE "UDG  LINE 360
9998 STOP
9999 RESTORE 10: FOR i=USR "a" T
O USR "u"+7: READ i$: POKE i,VAL
 i$: NEXT i: RETURN
```

At your command

A new command for Locomotive Basic on the CPC 464 with Scroll by ***S J Woodford***

The following machine code routine adds a new command to Locomotive Basic, ·*SCROLL*. It uses the Rom routine *Scr SW Roll*, which is accessed via the firmware jumpblock, location *&BC50*. The Rom routine will roll the area of screen as specified by the parameters held in the Z80 registers *E,L,D & H*. The *E* register is loaded with the bottom most row of the area to roll, the *L* register is loaded with the top most row of the area to roll, and the *D & H* registers are set to contain the right and left most columns of the area.

The area is best thought of as a window. The normal function of the Rom routine would be to roll text within a window during text output to the screen, etc. The screen in any mode is divided into 25 rows (lines of text on screen), numbered 0 to 24, the first column (left most) in any mode is column 0, but the last column (right most) in Mode 0 is column 19, in Mode one it is column 39, and in Mode two, 79. As a brief example, if you wished to *Scroll* the top five lines of the screen in Mode one, you would require, top row 0, bottom row 4, left most column 0, right most column 39.

Three other registers are used to contain data to perform the *Scroll*, these are *B*, *C* and *A*. *B* register contains the information to control the direction of the *Scroll*. If *B* is zero, then the text within the area will be moved downwards, and if the *B* register contains a value that is greater than this, then the text will be moved upwards. The *C* register contains the number of *Scrolls* to perform. One *Scroll* will move all text and graphics within the area defined up or down one row/line, so 25 *Scrolls* would roll the whole height of the screen, that is, if *E*=24 and *L*=0. That just leaves us with the *A* register. When a *Scroll* is actioned, a vacant line is produced, and the bytes of screen memory that go to make up this line are poked with a value that would normally set them to the background colour (Ink 0). If this value is altered then a substitute colour can be displayed, as can a stippled pattern depending on what value is used. The Basic demonstration program (Listing 3) creates an abstract effect using this.

The machine code routine is 107 bytes long and should be loaded into reserved memory at *&AB14* and above. It can be relocated, but this is best achieved by entering Listing 1 (Assembly language source listing) into an Assembler and changing Line 280 to any address that is less than Himem – 107. Lines 310-410 use the by now familiar, RSX Log On Routine, *&BCD1*. Once set up and called, this Rom routine will allow you to enter from Basic the command ·*SCROLL*, followed by any parameters required, which in turn will then call your routine, in this case *Scroll* at line 430.

The Basic Hex Dump and Loader (Listing 2), when typed in and *Run* will load the routine into reserved memory at *&AB14* and above. A brief check on the accuracy of the data is made and if incorrect, a break in Line 300 will occur. If correct you will be invited to save the code to tape, if this is not wished then the Basic loader will self-destruct leaving just the machine code in memory.

When a program is *Newed* all the space once occupied by it is not completely released, so if memory space is an important factor then it will be best to load the code directly from tape into memory with *Memory &AB13·Load"",&AB14*. Once in memory the first thing to do is to log the command on to Basic with *Call &AB14*. If the command is not logged on, each time it is encountered in a program or is entered directly from the keyboard, the error message *"Unknown Command"* will be printed.

Listing 3 is a Basic demonstration program. It starts off by creating abstract colour patterns in modes 0, 1 and 2, followed by a short text demonstration.

Syntax of Commands

Command No One

·SCROLL

This will perform a full width, full height scroll 25 times (all text and graphics on screen will be moved up and off screen).

Command No Two

·SCROLL,F

This is almost the same as above, but will scroll the whole screen up *F* number of lines.

Command No Three

·SCROLL,A,B,C,D,E,F,G

When using this command in your programs the letters A-G are to be replaced with the following:

A = Left most column of area to *SCROLL*
B = Right most column of area to *SCROLL*
C = Top most row of area
D = bottom most row of area
E = Zero to scroll downwards, Non Zero to scroll upwards
F = Number of *SCROLLS* to perform
G = Encoded ink colour to set vacant line to, this is worth experimenting with.

Note the symbol '·' is an elongated colon, and is obtained from the keyboard with *SHIFT* @.

```
10 ; Software'SCREEN SCROLL'Routine
20 ;
30 ; S.Woodford        [ JAN  1986 ]
40 ; ************************************************************
50 ;
60 ; Syntax of command is :-
70 ;
80 ; |SCROLL
90 ; |SCROLL ,F
100 ; |SCROLL ,A,B,C,D,E,F,G
110 ;
120 ; Were A = Left    most column of area to SCROLL
130 ;      B = Right   most column of area to SCROLL
140 ;      C = Top     most row of area to SCROLL
150 ;      D = Bottom  most row of area to SCROLL
160 ;      E = 0 to SCROLL down or >0 to SCROLL up
170 ;      F = Number of SCROLLS to perform
180 ;      G = Encoded ink colour to set vacant line to
190 ;
200 ;      (One SCROLL will move all text and graphics
210 ;       up one character line within the area set.)
220 ;
230 ; ************************************************************
240 RSX:     EQU  #BCD1
250 SWROLL:  EQU  #BC50
260 CHRLIM:  EQU  #BC17
270
280          ORG  43796
290          ENT  $
300
310          LD   BC,COMTAB    ;
320          LD   HL,BUF       ;
330          CALL RSX          ; log on command   SCROLL
340          RET
350
360 COMTAB:  DEFW TABLE
370          JP   SCROLL
380 TABLE:   DEFM "SC"
390          DEFM "RO"
400          DEFB "L", "L"+#80
410          DEFB #00
420
430 SCROLL:  CP   #00
440          JR   Z,FULL       ;  SCROLL
450          CP   #01
460          JR   Z,PART       ; |SCROLL ,F
470          CP   #07
480          RET  NZ           ; Syntax Incorrect
490
500
510          LD   A,(IX+#00)   ; get encoded ink colour
520          LD   C,(IX+#02)   ; get number SCROLLS to perform
530          LD   B,(IX+#04)   ; get if up or down SCROLL
540          LD   E,(IX+#06)   ; get bottom row
550          LD   L,(IX+#08)   ; get top row
560          LD   D,(IX+#0A)   ; get right column
570          LD   H,(IX+#0C)   ; get left column
580
```



```
590          JR   CHECK
600
610 LOOP:    PUSH AF
620          PUSH HL
630          PUSH BC
640          PUSH DE       ; save parameters
650          CALL SCROLL   ; call ROM routine SCR SW ROLL
660          POP  DE       ; get parameters
670          POP  BC
680          POP  HL
690          POP  AF
700          DEC  C        ; All SCROLLS Complete?
710          RET  Z        ; Yes
720          JR   LOOP     ; NO.
730
740 FULL:    LD   C,&19
750          JR   SETUP
760 PART:    LD   C,(IX+&0)
770 SETUP:   PUSH BC
780          CALL CHRLIM   , Get Screen Size
790          LD   D,B
800          POP  BC
810          LD   A,&00         ;
820          LD   B,&01
830          LD   E,&19         , Load Parameters
840          LD   L,A
850          LD   H,A           ,
860
870 CHECK:   PUSH AF
880          LD   A,C
890          CP   &00
900          JR   Z,EXIT        ; Return To Basic If Zero SCROLLS
910          POP  AF
920          JR   LOOP          , OK, Lets Roll .
930 EXIT:    POP  AF
940          RET
950
960          END
970
980 ;        BUFFER for use by ROM routine REX    ' HL LOB EXT '
990
1000 BUF:    DEFS &04
```

```
5 REM LISTING NO TWO
10 MEMORY &AB13
20 X=&AB14:Z=0
30 :
40 FOR A=1 TO 107
50    READ A$
60    POKE X,VAL("&"+A$)
70    X=X+1
80    Z=Z+VAL("&"+A$)
90 NEXT
100 :
110 IF Z<>&2E50 THEN 300
120 PRINT"DATA LOADED "
130 CALL &AB14:  Log On Command
140 PRINT:PRINT"DO YOU WANT TO SAVE
CODE TO TAPE"
150 INPUT T$:IF UPPER$(LEFT$(T$,1))=
"Y" THEN 310
160 NEW
170 :
180 DATA 01,1E,AB,21,7B,AB,CD,D1,BC,C9
190 DATA 23,AB,C3,2A,AB,53,43,52,4F,4C
200 DATA CC,00,FE,00,28,2D,FE,01,28,2D
210 DATA FE,07,C0,DD,7E,00,DD,4E,02,DD
220 DATA 46,04,DD,5E,06,DD,6E,08,DD,56
230 DATA 0A,DD,66,0C,18,24,F5,E5,C5,D5
240 DATA CD,50,BC,D1,C1,E1,F1,0D,C8,18
250 DATA F1,0E,19,18,0C,DD,4E,00,C5,CD
260 DATA 17,BC,50,C1,3E,00,06,01,1E,18
270 DATA 6F,67,F5,79,FE,00,28,03,F1,18
280 DATA D3,F1,C9,00,00,00,00
290 :
300 PRINT"DATA ERROR..PLEASE CHECK DATA
STATEMENTS ' ":STOP
310 SAVE"SCROLL",B,&AB14,&6B,&AB14
320 STOP
```

```
5  REM LISTING NO THREE
10 MODE 0
20 COUNT=70
30 RANDOMIZE TIME
40 WHILE COUNT<>0
50 A=9-INT(RND*10)
60 B=19-INT(RND*10)
70 C=12-INT(RND*13)
80 D=24-INT(RND*13)
90 E=INT(RND*2)-1
100 F=ABS(D-C)
110 G=INT(RND*256)
120 |SCROLL,A,B,C,D,E,F,G
130 COUNT=COUNT-1
140 WEND
150 MODE 1:FOR X=0 TO 24:
SCROLL,0,39,0,24,1,1,INT
(RND*256):NEXT
160 D=1
170 FOR X=0 TO 19
180 |SCROLL,X,39-X,0,24,D,1,0
190 NEXT
200 IF D=0 THEN 220
210 D=0:GOTO 170
220 RESTORE 280:MODE 0
230 READ A$:IF A$="ZZZ" THEN 300
240 LOCATE 10-INT(LEN(A$)/2),12:PRINT A$;
250 FOR T=1 TO 1000:NEXT
260 |SCROLL,0,19,0,11,1,1,0
270 GOTO 230
280 DATA THIS IS,AN EXAMPLE,OF HOW,TEXT &
GRAPHICS
,CAN BE,SCROLLED,ON SCREEN
290 DATA ZZZ
300 MODE 1:FOR X=1 TO 24:PRINT STRING$
(40,64+X);
310 P=INT(RND*4):IF P=0 THEN 310
320 PEN P
330 NEXT
340 FOR X=1 TO 12
350 |SCROLL,0,39,0,12,0,1,0
360 |SCROLL,0,39,13,24,1,1,0
370 NEXT
380 |SCROLL,0,39,0,13,1,12,0
390 |SCROLL,9,29,0,24,0,24,0
400 |SCROLL,14,24,0,24,1,24,0
410 |SCROLL,17.21,0,24,0,24,0
420 |SCROLL,19,19,0,24,1,24,0
430 MODE 2
440 FOR X=1 TO 640 STEP 3
450 MOVE 320,0
460 DRAW X,400
470 NEXT
480 |SCROLL,0,79,0,12,1,13,0
490 |SCROLL,0,79,13,24,0,12,0
500 CLS:PEN 1
```

Mind games

Test your mental arithmetic with this program for the C16 (or CBM64) written by Andy Sochanik

This program was developed on a CBM 64 and then moved to the C 16 via disc To run it on a 64, you must use the alterations which appear in the Rem statements

The program itself is an arithmetic tester, where you are given six sums to do across the screen. These sums can be addition or subtraction (you can change the mode at any time by pressing *a* or *t* (yes . . . *t* for takeaway!) or *e* to end).

You then input the answers in the usual way . . . units first, then tens, then hundreds If you answer incorrectly, you are given the opportunity to try again. If correct you are rewarded with a tick, a beep, and then you go on to the next sum . . . isn't science wonderful?

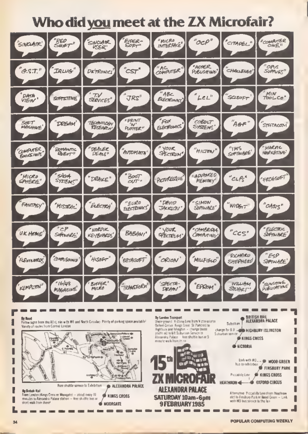
Good luck with your new C16, it's a good micro with a nice version of Basic Let's hope that the software houses convert their other Commodore games to run on the new machines Also hardware houses, how about that extra memory that the C16 can address (but isn't there!)?

Program Notes

Line No	
50- 90	Screen & colour locations, screen colours and clear
100-190	Add or takeaway
200-360	Write sums on screen
370-620	Inputting and checking answers
670	Sound (on C16)
680-690	Place tick or cross on screen
700-780	Write a message on screen
790	Ends
770	Name can be added using Poke values from manual (Set 2) Name can be any length

```
10 REM *** TENS & UNITS ***
20 REM ***  FOP CBM 16  ***
30 REM ***  AND CBM 64  ***
40 REM ***   DEC 1964   ***
50 SC=3072 CL=2048             REM FOR CBM 64 SC=1024 CL=55296
60 PRINTCHP$(14) PRINTCHR$(8)
70 REM REPLACE LINE 80 FOR CBM 64 WITH PRINT"■" [CBM KEY 7]
80 COLOR4,3 COLOR0,0,3 COLOR1 2
90 PRINT"■"TAB(240) AD=0
100 PRINTTAB(2)"DO YOU WANT HUNDREDS OR TENS & UNITS" PRINT
110 PPINTTAB(2)"ANSWER 'H' OP 'T'" FRINT PRINT
120 GETKEYK$                    REM FOR CBM 64 USE GETK$ IFK$=""THEN 120
130 IFK$="H"THEN640
140 IFK$<>"T"THEN120
150 PRINTTAB(2)"DO YOU WANT TO ADD OR TAKEAWAY?" PRINT
160 PRINTTAB(2)"ANSWER 'A' OR 'T'"
170 GETKEYK$                    REM FOR CBM 64 SEE ABOVE
180 IFK$="A"THENAD=1 GOTO200
190 IFK$<>'T"THEN170
200 PRINT"■■■" A=0              REM [CLR]+[2*CUR D]
210 GOSUB660 A$(A)=X$ IFLEN(X$)=2THENA$(A)=" "+X$ IFAD=1THEN230
220 IFVAL(X$)<10THEN210
230 PRINT"  | ,", PPINT"■■■■"A$(A),   REM [CUR D]+[3*CUR L]
240 GOSUB660 B$(A)=X$ IFLEN(X$)=2THENB$(A)=" "+X$
250 IFAD=1THEN270
260 IFVAL(B$(A))>=VAL(A$(A))THEN240
270 IFVAL(B$(A))=0THEN240
280 IFAD=0THEN320
290 PRINT"■■■■■+"B$(A),          REM [CUR D]+[4*CUR L]
300 PRINT"■■■■ ―",               REM [CUR D]+[3*CUR L]+[SPC]+[CBM T]
310 GOTO340
320 PRINT"■■■■■-"B$(A),          REN SEE ABOVE
330 PRINT"■■■■ ―",               REM SEE ABOVE
340 PRINT"■■■■', A=A+1           REM [3*CUR D]+[2*CUR R]
350 IFA=6THENPRINT PRINT"■■■■■■', GOTO370    PEM [3*CUR D]+[3*CUR R]
360 GOTO210
370 A=0
380 K=1
390 REM FOR CBM 64 INSERT NEW LINE POKE204,0      REM [FLASH CURSOR]
400 GETKEYK$                    REM FOR CBM 64 SEE ABOVE
410 REM FOR CBM 64 INSERT NEW LINE POKE204,1      REM CURSOR NORMAL
420 IFK$="A"THENAD=1 GOTO200    REM ADDITION
430 IFK$="T"THENAD=0 GOTO200    REM TAKEAWAY
440 IFK$="E"THENGOTO790         REM END
450 IFK$<"0"ORK$>"9"THEN400
460 IFAD=0THEN490
470 K$(K)=K$ PRINTK$"■■", IFK=3THEN520                REM [2*CUR L]
480 GOTO500
490 K$(K)=K$ PRINTK$"■■"  IFK=2THEN520                REM [2*CUR L]
500 K=K+1
510 GOTO400
```

```
520 T=VAL(A$(A)) B=VAL(B$(A))
530 K$=K$(2)+K$(1) IFAD=1THENK$=K$(3)+K$(2)+K$(1)
540 ANS=T-B IFAD=1THENANS=T+B
550 IFAD=0THEN570
560 IFANS<>VAL(K$)THENPRINT"■■■", PO=80 S=100 GOSUB670 GOTO300 REMWRONG[3*CUR R]
570 IFANS<>VAL(K$)THENPPINT"■■", PO=80 S=100 GOSUB670 GOTO380 PEM WRONG[2*CUR R]
500 IFAD=1THENPRINT"■■■■■■■■■", GOTO600                    REM [9*CUR R]
590 PRINT"■■■■■■■■",        REM [8*CUR R]
600 PO=122 S=917 GOSUB670          PEM CORRECT
610 A=A+1 IFA=6THENGOSUB700 GOTO200
620 OOTO380
630 STOP
640 PRINT"■   ■■CAN'T DO IT YET!"
650 GOTO790
660 X$=STR$(INT(RND(0)*100)) RETURN     REM 0ENERATE RANDOM NOS. 1-99
670 VOL0 SOUND1,S,10               REM FOR CBM 64 THIS LINE=
600 REM FOR CBM 64 ADD A NEW LINE POKE CL+285+(A*6),13
690 POKESC+205+(A*6),PO RETURN
700 I=1
710 README IFME=-1THEN750
720 REM FOR CBM 64 ADD A NEW LINE POKE CL+520+I,13
730 POKESC+520+I,ME
740 I=I+1 OOTO710
750 RESTORE
760 FORI=1TO3000 NEXT RETURN
770 DATA07,5,12,12,32,4,15,14,5,32,03,01,13,09      REM XX=YOUR NAME [SET 2]
780 DATA44,32,25,15,21,32,7,15,20,32,1,12,12.32,19,9,24,32,10,S,7,8,20,-1
790 PRINTCHR$(9) PRINTCHR$(142) END     REM BACK TO NORMAL
```


Who did you meet at the ZX Microfair?
"SINCLAIR"
"RED SHIFT"
"SINCLAIR USER"
"EIDER-SOFT"
"MICRO INTERFACE"
"OCP"
"CITADEL"
"COMPUTER ONE"
"G.S.T."
"IRLUG"
"DK'TRONICS"
"CST"
"AC COMPUTER"
"ADDER PUBLISHING"
"CHALLENGE"
"OPUS SUPPLIES"
"DATA VIEW"
"SOFTSTONE"
"T.V SERVICES"
"JRS"
"ABC ELECTRONICS"
"LCL"
"SCISOFT"
"MIN TOOL CO"
"SOFT MACHINE"
"DREAM"
"TECHNOLOGY RESEARCH"
"PRINT 'N' PLOTTER"
"FOX ELECTRONICS"
"COBOLT SYSTEMS"
"AGF"
"STATACOM"
"COMPUTER BOOKSHOPS"
"ROMANTIC ROBOT"
"DEALER DEALS"
"AUTOMATA"
"YOUR SPECTRUM"
"HILTON"
"IMS SOFTWARE"
"MARVIC MARKETING"
"MICRO SPHERE"
"SAGA SYSTEMS"
"DRAKE"
"BOOT OUT"
"PICTURESQUE"
"ADVANCED MEMORY"
"CLPS"
"FROGSOFT"
"FANTASY"
"MISTRAL"
"ELECTRA"
"EURO ELECTRONICS"
"DAVID JACKSON"
"SIMON SOFTWARE"
"WIDGIT"
"OASIS"
"U.K. HOME"
"CP SOFTWARE"
"NORDIK KEYBOARDS"
"BABANI"
"YOUR SPECTRUM"
"CAMBRIDGE COMPUTING"
"CCS"
"ELECTRIC SOFTWARE"
"FLEXIWORDS"
"COMPUSOUND"
"HISOFT"
"BETASOFT"
"ORION"
"MILLFIELD"
"RICHARD SHEPHERD"
"ESP SOFTWARE"
"KEMPSTON"
"16/48 MAGAZINE"
"BUFFER MICRO"
"TRANSFORM"
"SPECTA-DRAW"
"EPROM"
"WILLIAM STUART"
"SUNSHINE PUBLICATIONS"
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Follow signs from the A1 (L nin with M1 and North Circular). Plenty of parking space available! Variety of routes from Central London
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BRITISH RAIL ALEXANDRA PALACE
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HIGHBURY ISLINGTON
KINGS CROSS
VICTORIA
15th ZX MICROFAIR
ALEXANDRA PALACE
SATURDAY 10am-6pm
9 FEBRUARY 1985
Link with W3 bus to exhibition
WOOD GREEN
FINSBURY PARK
Piccadilly Line
KINGS CROSS
HEATHROW
OXFORD CIRCUS
Alternative: Piccadilly Line (from Heathrow etc) to Finsbury Park or Wood Green – Link with W3 bus service to the fair

Addressing the problem

A name and address filing system for the Dragon 32 with Dragon DOS by R Braban

This program is for the Dragon 32 running Dragon DOS and disc drive. The program allows address book type data to be saved and then retrieved from disc. The data file created by the program may be updated or modified and also can be searched for a specific name or part of name.

The advantage of using a computer to search for names instead of the more conventional address book are firstly to justify buying a disc drive(!), but more seriously, to use the ability of the computer to look for part of a name in the file. This allows the user to find the name and address of someone who you can only remember by their Christian name or maybe the end of their surname.

The program has been written to save address book type of information in the following format: Name – 20 characters, six lines of Address – 32 characters per line and telephone number – 20 characters. This actually gives a total of 232 characters of information per record. The disc actually uses 234 characters to store the record, as end of line characters are also stored.

Using the above format, the number of addresses which can be stored is greater than 700, which should be quite sufficient for most purposes.

Program Notes

180 – 240

Write data onto date file 'Adress.Dat'

250 – 620

Read data from disc and allow correction on search for a specific name. If no name is supplied the program steps through all addresses stored on disc.

1000 – 1260

Data entry routine allows data to be entered so that it can be stored on disc.

2000 – 2060

Error routine invoked if an error is produced by the program ie, when an attempt is made to read the disc when the file is not present.

Variables

R$-All replies from the user
LN-Length of file on disc.
F-Flag for check name routine
M$-The name the user wants to find.
N$-Name on disc
A$-Address data on disc
T$-Telephone number from disc
P-Position of disc data pointer

When writing the program I came across a problem with reading data from a file. The problem was that the data pointer on the disc file is reset if the *Input* command is used, ie, 10 FREAD "ADDRESS"CM$ 20 PRINT CM$.INPUT A 30 GOTO 10

The command *Input A* will reset the data pointer. This is why I have used the variable *P* to save the last position of the data read from the file.

To run the program type in as presented here. The REM statements have been given "odd" line numbers so that they can be left out if not required.

```
1 '**************************
2 '* R.BRABAN                *
3 '**************************
100 CLEAR3000
110 ERROR GOTO 2000' error routine vector
120 CLS3
130 PRINT"THIS IS AN ADDRESS BOOK SYSTEM"
140 PRINT@32*5,"DO YOU WANT TO READ OR WR
ITE"
150 PRINT"DATA (R,W)",
160 INPUT R$ IF R$="R" THEN 250 'auto
 read disk routine
170 IF R$<>"W" THEN 120
180 GOSUB 1000 'enter data routine
190 FWRITE"ADRESS" CM$ 'save data on disk
200 PRINT@32*6,"DATA SAVE COMPLETED"
210 PRINT@32*8 "NUMBER OF RECORDS . "
220 LN=(LOF("ADRESS.DAT")) PRINTINT
(LN/234) 'print out number of addresses
 saved
230 WAIT 3000
240 RUN
250 CLS0 PRINT" the read function"
260 LN=(LOF"ADRESS.DAT") 'set
 length of file
270 PRINT@32*14 "NUMBER OF RECORDS"
INT(LN/234)
280 PRINT@32*4,"DO YOU WANT TO ENTER
 A NAME"
290 PRINT@32*5+6,"Y,N"; INPUTR$
291 'the data can be stepped through or
292 'a specific name can be searched for.
300 IF R$="N" THEN F=0 GOTO 340 'clear
 check name flag
310 IF R$<>"Y" THEN 280
320 CLS2 PRINT@32*5 ""; INPUT"NAME ";M$
330 F=1 'set check name flag
340 P=0 'posn of data pointer on disk
350 CLS6 PRINT@6,"DATA BEING READ".
360 FREAD"ADRESS" FROM P,CM$
370 P=P+234 'inc data pointer on disk
380 CLS PRINT"DATA AS FOLLOWS"
381 'format data from string CM$
390 N$=LEFT$(CM$,20)
400 FORI=0 TO 5
410 A$(I)=MID$(CM$,I*32+21,32)
420 NEXTI
430 T$=RIGHT$(CM$,20)
440 PRINTN$
450 FORI=0 TO 5
460 PRINTA$(I)
470 NEXTI
480 PRINT"TELE..",T$
490 IF F=0 THEN 520 'if check name
500 IF INSTR(1,N$,M$)=0 THEN 550 'no
 match
510 PRINT@32*12+8 "THIS IS A MATCH
520 PRINT@32*14,"PRESS [C] TO CHANGE ENT
RY  PRINT@32*15+6 "[D] TO QUIT",
530 H$=INKEY$ IF H$="" THEN 530
540 IF H$="C" THEN 590 ELSE IF H$="Q" TH
EN 100
550 IF P<LN THEN 360
560 CLS5 PRINT@32*10+, "END OF FILE
570 WAIT 1000
580 RUN
581 'routine to change data on disk
590 GOSUB 1000
600 P=P-234
610 FWRITE"ADRESS" FROM P,CM$ 'save new
 data
620 RUN
1000 CLS6 PRINT"PLEASE ENTER" 'data entry
 routine
1001 'enter name and address data
1010 PRINT@32*12,N$
1020 PRINT@32 "NAME.. "; INPUTR$ IF R$<>""
 THEN N$=R$
1030 PRINT@32 STRING$(32,CHR$(32))
1040 GOSUB 1360
```

continued over the page

Dragon

```
1050 IF LEN(F$)>20THENCLS6: PRINT@32*12,
'NAME TO LONG' WAIT 1000 CLS6 N$="" GOTO
 1020
1060 FORI=0 TO 5
1070 PRINT@32*1, A$(1)
1080 PRINT@32*3," LINE ",I+1,"OF ADDRESS"
 INPUT R$ IF R$<>"" THEN A$(I)=R$
1090 PRINT@32*4,STRING$(32," ")
1100 IF LEN(R$)>32 THENCLS6 PRINT@32*12
'ADDRESS TO LONG' WAIT 1000 CLS6 A$(1)="
" GOTO 1080
1110 GOSUB 1380
1120 NEXTI
1130 PRINT@32*12 T$
1140 PRINT@32*2 "ENTER TELEPHONE " INPU
TR$ IF R$<>"" THEN T$=R$
1150 IF LEN R$>20 THEN CLS6:PRINT@32*12
'NUMBER TOO LONG' WAIT 1000 CLS6 T$=""
GOTO 1140
1160 CLS
1161  Print out data just entered
1170 PRINT "CHECK THE DATA"
1180 PRINT@32*2 N$
1190 FORI=0 TO 5
1200 PRINT@32*(I+3),A$(I),
1210 NEXT I
1220 PRINT@320,"TELE..",T$
1230 PRINT@32*12,"IS THE DATA CORRECT (Y
/N)?"
1240 R$=INKEY$ IF R$="" THEN 1240
1250 IF R$="Q" THEN RUN 'quit the save
1260 IF R$="N" THEN 1000  re-enter data
1270 IF R$<>"Y" THEN 1250
1280 N$=N$+STRING$(20-LEN(N$)," ") make
 N$ string up to 20 chr long
1290 FORI=0 TO 5
1300 A$(I)=A$(I)+STRING$(32-LEN(A$(I))," 
"), make A$ string up to 32 chr long
1310 NEXTI
1320 T$=T$+STRING$(20-LEN(T$)," ") 'make
 T$ string up to 20 chr long
1321 'compress data into one string CN$
1330 CN$=N$
1340 FORI=0 TO 5 CN$=CN$+A$(I):NEXTI
1350 CN$=CN$+T$+","
1360 CLS4 PRINT@32*4,"OK DATA IS BEING
 SAVED"
1370 RETURN
1380 PRINT@32*12 STRING$(32," ")
1390 RETURN
2000 CLS 6: error code routine to find
 if ADRESS.DAT is present.
2010 IF ERR <>160 THEN PRINT@32*6 "ERROR
 CODE " ERR " @LINE " ERL END
2020 PRINT@32*4+7,"FILE DOES NOT EXIST "
2030 PRINT@32*5+7,"ON THIS DISK"
2040 PRINT@32*14 "    PRESS ANY KEY TO
 CONTINUE"
2050 IF INKEY$="" THEN 2050
2060 RUN
```



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Open Forum

We are always actively seeking programs for publication – either for Open Forum, the machine pages or Star Game. When sending in a program for consideration, a clear program listing should be sent, together with, wherever possible a saved copy on cassette. Documentation – usually not more than 1000 words – should start with a general description of the program, what it does, and then some detail of how the program itself is constructed. We pay very competitive rates, according to the length and nature of the program and the quality of the accompanying documentation.

Wordcount

on CBM 64

Commodore's own 'official' word processor *Easy Script* has one missing feature which occurs on other word processors, namely a word-count facility, which is vital to those who have to produce their writings to order (essays, magazine copy, etc)

When the text has been saved to disc, load and run *Wordcount*. Enter the text file name when prompted, ensuring that the text disc is in the drive beforehand. To speed the program up slightly, Line 50 may be removed, though this will stop the printout facility.

Note: filenames may include the usual wild card and pattern matching facilities as well.

```
1 REM*********************
2 REM** WORD COUNT 64 **
3 REM** FOR C64 WITH  **
4 REM** EASY SCRIPT * **
5 REM** DISC DRIVE    **
6 REM** ------------- **
7 REM** BY R M DOWELL **
8 REM*********************
10 INPUT"FILENAME";FI$
20 OPEN2,8,2,"0:"+FI$+",S,R"
30 GET#2,A$
40 IFA$=CHR$(128)THENGOSUB130
50 PRINTA$,
60 IFA$<>" "ANDA$<>CHR$(13)THEN90
70 IFB$=" "ORB$=CHR$(13)THEN90
80 CO=CO+1
90 IF(A$<>CHR$(199))OR(B$<>CHR$(199))THENB$=A$ GOTO30
100 CLOSE2
110 PRINT  PRINT"NUMBER OF WORDS IN "FI$" ="CO-1
120 END
130 GET#2,A$
140 IF(A$<>";")AND(A$<>CHR$(13))THEN130
150 RETURN
```

Wordcount
by A M Dowell

Arcade Avenue

Hi-score heroes

Lets get straight on with some high scores this week. From Angus Campbell of Borth, Dyfed comes the score of 384,240 on Level 30 of *Chuckie Egg*. Justin Barker of no fixed abode has scored 66,328 on *Jet Pac* with 31,150 on the first screen alone. He has also got 103,275 on Quicksilva's *Space Intruders* (thanks partly to a scoring bug), 100,230 on *Gulpman*, cleared 4 hazards on *Jumping Jack* and finished JSW. His favourite game is *Scuba Dive* and he avoids *Timegate* and *Cookie* which goes to show how peoples tastes differ. Mike Docherty of London has scored 46,385 on *Ant Attack* and is now working on *Zombie Zombie*.

P Ledger of Leeds has scored 272,200 on *Sabre Wulf*, finished *Kokotoni Wilf* by collecting 63 objects and has finished *Atic Atac* with 82,460 and 83%. Peter Page of Andover has reached 100% on *Sabre Wulf*, but does not give a score as well, he suggests trying a real challenge such as *Psytraax* and admits that *Monty Mole* is "OK-ish".

I had quite a response when I revealed that I hadn't seen *Back Track* by Incentive for the Dragon. The company themselves even sent me a copy which was very kind but I'll leave it up to Duncan Macmillan of Paisley to sum the game up as a "brilliant smooth scrolling 3D maze game". I have to agree. Even though I normally hate such games, *Back Track* has lots of amusing touches and the top down view gives it an air of *Atic Atac*. Strangely Dragon software now seems better than it has ever been. In answer to Guy Hedley, who started all of this, Duncan finished the game 4 days after buying it on the 10th October. Can anyone beat his high score on test one of 1 min 12 seconds? Incidentally the first Dragon owner to send in 4 original *Pokes* will win my copy of the game.

T P Robertson (age 26) of Edmonton has scored the following on his Amstrad CPC 464 – *Roland-on-the-Ropes* 173,100 on Level 5, although Level 6 has been reached scoring only 148 800 points. On *Harrier Attack* the hi-score is 165,870 with 524 hits.

Back to the Spectrum with these scores from Gary Barrows of Liverpool – *Phoenix* by Megadodo 85670, also *Trans Am* by Ultimate 12220 and a best time of 2 minutes and 8 seconds. He recommends DJL's *Froggy* as the best version of the game and goes on to ask if anyone knows how the scoring system of *Mugsy* works as when he gets bumped off quickly he gets a better percentage than when he survives for a while. Perhaps it's what Melbourne House call strategy Gary. Anyway, why not increase your chances with this *Poke* from Andrew Long of Northampton to get you through the arcade sections – *Poke* 43012,0 *Poke* 42906,0. Andrew's excellent letter goes on to give infinite lives for *Zzoom* – *Poke* 24743, 0 *Poke* 32533,0, for *Kosmic Kanga* – *Poke* 36212,0, and for *Ground Attack* – *Poke* 29063,0. He recommends *Monty Mole*, *JSW*, *Sabre Wulf*, *Underwurlde* and *Knight Lore* (no surprises there). Andrew is also very keen to get a penpal of any age or sex (he is 12) and it may be an excellent chance for some of you who write in completely baffled by the world of *Pokes* and hacking to get some help in getting started. Andrew Long's address is 11 Penfold Drive, Great Billing, Northampton.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD

Open Forum

Disc Utility

on BBC

This is a small utility for the BBC which can be 'BOOTED' from disk. It will automatically CATologue your disc and then asks you *'What drive'* you want, and whether you want your programs *Locked* or *Unlocked*. Finally it will ask you what program you want loaded, and then load it.

```
10 *KEY10 OLD|M*FX200,1|MGOTO20|M
20*FX200,1
30MODE7
40CLS
50PRINTCHR$(141);"          DISK UTILITY"
60PRINTCHR$(141);"          DISK UTILITY"
70PRINT:PRINT"CATALOGUE"
80*CAT
90PRINT
100PRINT"            PRESS ANY KEY"
110IF INKEY$(20)=""THENSOUND1,-15,100,1:GOTO110
120CLS
130PRINTCHR$(141);"          DISK UTILITY"
140PRINTCHR$(141);"          DISK UTILITY"
150PRINT:PRINT:PRINT
160INPUT"   WHAT DRIVE ";DR
170IF DR=0THEN*DR.0
180IF DR=1THEN*DR.1
190IF DR=2THEN*DR.2
200IF DR=3THEN*DR.3
210IFDR<0ORDR>3THENSOUND1,-15,125,3:GOTO120
220PRINT
230INPUT"   (L)ocked OR (U)nlocked ";AC$
240IF AC$="L"THEN  *AC. * L
250IF AC$="U"THEN  *AC. *
260IF AC$<>"U"ANDAC$<>"L"THEN120
270PRINT
280 INPUT"   PROGRAM TO LOAD ";PR$
290PRINT:PRINT"           LOADING ";PR$
300 CHAIN PR$
```

Disc Utility
by N Whitely

The Music Box

Playalong music

Every year in the autumn, the city of Frankfurt plays host to the world's largest book fair. Now, I must confess that apart from that book fair, the sausage and an American army base, Frankfurt has meant little else to me – but, it appears, I have been missing out because, at around this time every year, the city also hosts a mammoth music fair to which companies unveil many of their new products for the coming months.

Well, 1985's Frankfurt Musik Messe (that's German for 'fair') is with us and many of the new products will, this year be of interest to computer buffs.

I'll concentrate on one company's offerings in this week's column. Music Sales, who produce the Commodore 64 *Music Maker* (with clip-on keyboard) have a number of software packages on show. Apart from the £24.99 *Music Maker* itself, the company are introducing a *Playalong Album*, a sampler and something called the 'Prosynth' all compatible with the *Music Maker*.

The *Playalong Album* is expected to retail at £9.99 and will play melodies in a number of modes (with, if required, 'disco graphics') and will allow budding musicians to play along with familiar tunes in rehearsal, performance or improvising modes.

The sampler (expected to be around £80) allows sound sampling with forward or reverse replay, looping and echo and the ability to mix sampled sound and SID sounds. Music Sales say it will feature Midi connections and will be able to display an amplitude-against-time graph or a Fourier spectrum analysis for any sound. The Prosynth will allow the Music Maker keyboard to be used for step time or real time sequencing with multi-tracking and will give the user access to all the SID's features. It will be capable of being used with a Midi interface, and is expected to retail at £14.99.

I must say these all seem exciting developments but I'll wait for a final word until I've seen and heard them in operation.

Gary Herman

The Music Box is a weekly column with news, reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to Gary Herman, The Music Box, 12-13 Little Newport Street, London WC2H 7PP.

Food

on Amstrad

Here is an Amstrad game for those quieter moments during the New Year. This word game uses food items, but you can substitute your own. Remember to change Line 280 to accommodate the number of words in your list. Any group of words may be used, names, places, countries, personalities, etc.

Program Notes

Line 260	is the sub routine to set up the array
Line 45	selects a random word
lane 100	ensures a non-repetition
Line 50-70	indicate the word and give you the first letter
Line 150-160	print a tally of the letters used. Incorrect letters will flash
Line 115	gives audible warning that a letter has already been used.
Line 125	keeps a record of attempts to 10

```
5 '-------------------------------------
10 '         FOOD 4 THOUGHT
15 '-------------------------------------
20 GOSUB 260
25 MODE 1
30 INK 2,24,1 PEN#1,3:INK 3,26
35 WINDOW#1,1,40,6,7
40 DIM CHOICE$(40)
45 Y=INT(RND*30)+1:IF W$(Y)="$" THEN 45
50 A$=W$(Y) MIS=0
55 1=LEN(a$)
60 b$=STRING$(1,".")
65 PEN 3  LOCATE 1,24 PRINT b$
70 PEN 1: LOCATE 1,24 PRINT LEFT$(a$,1)
75 Q$=LEFT$(A$,1)
80 CHOICE$(1)=Q$ CHOICES.MADE=1
85 GOTO 100
90 LOCATE 1,2:PRINT"letter ', PEN 2:PRINT "?";
CHR$(8); PEN 1 Q$=UPPER$(INKEY$):I
F Q$<"A" OR Q$>"Z" THEN 90
95 FOUND=0
100 FOR X=1 TO CHOICES.MADE
105 IF CHOICE$(X)=Q$ THEN FOUND=1:X=CHOICES.
MADE
110 NEXT X
115 IF FOUND=1 AND CHOICES.MADE>1 THEN SOUND
1,400,10,5,5,2:GOTO 90
120 CHOICES.MADE=CHOICES.MADE+1
125 CHOICE$(CHOICES.MADE)=Q$ IF CHOICES.
MADE)10 THEN CLS#1:PRINT#1,'SORRY BUT IT
 WAS ",A$ GOTO 190
130 FOUND=0 FOR x=1 TO 1
135 z$=MID$(a$,x,1)
140 IF 4$=z$ THEN FOUND=1 GOSUB 225
145 NEXT x
150 IF FOUND=1 THEN PEN#1,1 ELSE PEN#1,2
155 IF FOUND<>1 THEN MIS=MIS+1
160 PRINT#1,Q$," ", PEN#1,1
165 IF B$=A$ THEN GOTO 175
170 GOTO 90
175 IF MIS=1 THEN M$="ERROR" ELSE M$="ERRORS"
180 PEN 3  LOCATE 15,24 PRINT"COMPLETED
-WITH ",MIS,M$
185 W$(Y)="*'
190 LOCATE 14,14:PRINT"AGAIN ? (Y/N)
195 1$=INKEY$ IF 1$="" THEN 195
200 IF 1$="Y' THEN ERASE CHOICE$
GOTO 25 ELSE 205
205 CLS:END
210 '-------------------------------------
215 '      INSERTS CORRECT LETTERS
220 '-------------------------------------
225 LOCATE x,24:PRINT z$
230 MID$(B$,X,1)=MID$(A$,X,1)
235 MID$(0$,1,1)=MID$(A$,1,1)
240 RETURN
245 '-------------------------------------
250 '           SET UP ARRAY
255 '-------------------------------------
260 DIM W$(30)
265 FOR N=1 TO 30
270 READ W$(N) NEXT N
275 RETURN
280 DATA "KIPPERS","BANANA",'CEREAL",
"MUTTON","PANCAKE',"OMELETTE","POTATOES",
"MARMALADE","CHEESE","BISCUITS'
285 DATA "CAKES","TOMATO",'CARROT",'BREAD",
"APPLES","TOAST","CABBAGE","ONIONS","
BUTTER","ICECREAM"
290 DATA 'YOGHOURT","SANDWICH","TURKEY",
"CHICKEN","LETTUCE","SALAMI","JELLY',
"MOUSSE","MARGARINE","WHFFLES"
```

Food
by A Cordell

Book Ends

Book *Brainteasers for the Commodore 64* **Price** £5.95 **Micro** Commodore 64 **Supplier** Phoenix Publishing Associates 14 Vernon Road Bushey Herts WD2 2JL

Here's a collection of listings that doesn't try to simulate arcade favourites, for a change, but don't expect brainteasers that would have puzzled Einstein.

Author Geneviève Ludinski runs a software company specialising in educational material, and many of the 23 programs here wouldn't look out of place in an educational package. That's not to say that they'll teach Junior to spell overnight, instead they concentrate on developing concentration, recognition, musical ability, etc.

The games' quality varies, but then again so does the quality of many educational programs that I've encountered, and as this book costs roughly the same as a cassette it could suit parents who are not averse to typing in order to provide their youngster with a few hours' basic skill training. **John Minson**

Book *Quick QL Machine Language* **Price** £7.95 **Micro** Sinclair QL **Supplier** Melbourne House, Castle Yard, Richmond TW10 6TF

Let me emphasise that this is *not* a book for beginners. You will not find any explanations of binary and hex, no neat little diagram of a CPU. Instead Alan Giles explains the 68000 instruction set by developing a disassembler and listing it with line by line notes.

Mr Giles obviously knows the QL better than the some people who have written about it and this is a novel approach, but I'm not sure how well it works. Certainly the novice will be all at sea as the *SuperBasic* listing itself calls for a good understanding of the language. However, those who are used to machine language on another chip should be able to make the jump with some perseverance.

John Minson

Tony Bridge's Adventure Corner



A cosmic force

Last week I was talking about *Lords of Midnight*, and this week the Grand Elf thinks it's about time we looked at another adventure of nobledom – *Lords of Time*

Why do I like Level 9 programs so much? After all, several adventurers have drawn my attention to the drawbacks "I don t think Level 9 are so hot – I actually found a bug in one of their progs!" Well, yes even Level 9 aren't 100% perfect (only Infocom – I think – have that distinction), but they aren't far from it The occasional spelling and grammatical error, or programming slip-up, is more than compensated by the enthralling story-line and atmosphere

Please don't read this as a blanket excuse, though – the adventure under scrutiny, *The Lords of Time*, has its fair share of sloppy spelling and grammar (for example, try the very first location), as well as one or two bugs that are not as well hidden as they ought to be

You know, don't you, that the world isn't just bumbling along in space minding its own business I mean, what good is a large ball of bustling humanity, if it's not being threatened by some cosmic force? In this case Evil Timelords are meddling with Earth's history – well, they want to rule eternally and you don't manage that over a cup of tea! Of course, it is up to you to defeat them, and accomplished by completing the secret formula. What secret formula? Ah, that's for you to find out, although Level 9 give you a good headstart with a few lines of verse in the booklet

The adventure is really big, with over 200 locations, all of them with detailed descriptions and most of them containing some sort of puzzle But it is not just a mammoth slog around as most of you will probably know, the program consists of nine time zones, each of which is a different period of history For example, the player will be able to visit Medieval times as well as the distant Future

From the beginning it is necessary to (look at the list of words at the end) 29,28,19,28,6,3,24 28,15 then 16,31,15 10, 7,21,14,21,1,26,9,5,22,3,24

You can try different zones to get a feel of the adventure, but remember that you will need objects from one zone in another zone, so don't expect an easy trip in the higher-numbered zones It is also a good idea to *Save* your position when you've reached the clock so that you can simply *Restore* if you want to try another zone

How does the game play? All Level 9's earlier efforts (until seduced by 'market forces', as 'they' are called now, into adding graphics) are text-only, and the text is printed onto the screen in Telex-style Unlike Infocom, each time you visit a location, the text is printed labouriously, and thus can get a little wearing after a time – input is a little slow, and a fast typist will find himself tripping over his fingers I frequently have to go back over a sentence and edit it before pressing *Enter*. All this tends to slow down play There are also a couple of weird phenomena in the text-handling For instance, although *Get Everything* is recognised, try typing *Get All* – the program responds with 'You See No Allosaurus Here'! This might give you the idea to try some random combinations of letters

A final anomaly regarding text input – the first four letters of any word are accepted, but type in a fifth letter and it has to be correct For example, *Pict* is recognised as Picture, but *Pictr* is not

But all these gripes apart, the adventure works very well The atmosphere is exceedingly well invoked, and the 200-plus locations are used very well, with absolutely no sense of padding or waffling So often I come across programs that include locations that just repeat 'You are in a long corridor/dusty room'. Each and every step of the way in *Lords of Time* seems to herald a new object or puzzle to delight the player Mapping becomes a joy! The puzzles are tough, but not unfair in hindsight, although you will need to have a good dictionary

Now to some help and hints. Steven Rhodes has found a strange property of the candle "I found it impossible to extinguish the Candle, but when it flickers, leave it at a location and go elsewhere – now, if it goes out and you return, voila, you have a new Candle which only needs to be re-lighted To get through the crude black archway in Zone 3, you must read the sign very literally and 35,15,4,25,33 (this should be good news to several of you) In the Stone Age level, you will find an Inventions Room. What else would you do but type 30, then 13,2 after which you will discover the Wheel!" The Wheel must be kept with you, as it facilitates your travels back to the Clock.

Some of the questions asked about *Lords of Time* are "How do I buy the Ale in the Medieval zone (I've tried the silver coin)? How do I kill the Dragon and get the Wing (one of the ingredients of the secret formula)?" To get the Ale 34,8, and the Wing 34,27,37,17, "What do I do with the Cards in zone 6, the Tudor Age 32,20? In the Medieval Age can I free the Wretch in the stocks – 11 And how do I get past the Black Knight – 34,38 37 23?"

I hope that I've given you a hint of the flavour of *Lords of Time* One of the more interesting aspects of the adventure is the fact that Sue Gazzard, the author (ess), wrote the scenario and approached Level 9 to code the program This approach is more often seen in America than in Europe, but shows that it is an idea to take your storyline to an established software house if you're not able to program (and you don't want to use *The Quill*)

Many thanks to those of you who have sent me maps and hints for *Lords of Time* Special thanks to Hugh Walker of Guildford, who drew up some really detailed and colourful maps, and invaluable advice, without which I'd be completely on my own!

1 TURN 2 WAIT 3 GO 4 FROM 5 PUSH 6 HOURGLASS 7 WIND 8 NUGGET 9 NUMBER (zone) 10 CANDLE 11 NO! 12 GET 13 JAMES 14 ENTER 15 MILESTONE 16 LIGHT 17 DRAGON 18 EVERYTHING 19 PICTURE 20 THEM 21 CLOCK 22 PENDULUM 23 PRINCE 24 NORTH 25 MEDIEVAL 26 COG 27 FOOD 28 TAKE 29 LOOK 30 EUREKA! 31 MATCH 32 SHUFFLE 33 VILLAGE 34 GIVE 35 DROP 36 CHEAT 37 TO 38 SWORD

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Peek & Poke



Network problems

B B Edward of Southport, writes.

Q **Is it possible to network a Spectrum and QL together? If networking is technically feasible, is it possible to format the QL microdrives for storage of Spectrum programs**

If the above is advisable, what is the procedure for doing it?

A Tut, tut! You have not been reading *Popular* for the past few months. All of these questions (and much more) have been answered on the QL page.

Yes, networking is possible, yes, you can store files for the Spectrum on the QL microdrives, although not in Spectrum format. Leastways not easily

Communication between these machines is well documented in numerous books on the QL, so I leave it to you to ferret out the answer to your last question yourself I am not wriggling out of answering (honest!), but I think that a good read is what you need before embarking on this sort of project

Start again

George Stavers, of London, writes

Q **I'm having a spot of bother that I hope you can help me with. Three weeks ago I bought a Spectrum, lovely until the keyboard went kaput! W. H. Smith's changed it without any argument. Then my troubles really began. I am unable to *Save* any programs, no matter what volume control I use I can only save the first part (the header), not the rest of it. When I play back my recording I get the high pitched whine okay, but not the 'machine gun chatter'. I have no trouble at all in *Loading*, all commercial programs *Load*, no problem. I have tried every volume control setting possible from very low to very high, no difference. Any thoughts?**

A I hope that you don't live very far from Smith's, because I have a funny feeling that you will be taking this machine back as well It seems that you have a fault in the Rom as the systems you describe would occur only if the header part of the program was being written to the tape and not to the main program. This can only occur if there is a bug in the Rom. Nothing can really be done I am afraid

Missing memory

T J Vernon, of Reading, writes

Q **I've owned a 48K Spectrum for a couple of years and thought I knew my way around the machine but this one has me puzzled.**

10 LET A$= "100 of any character"
20 LET A$ = A$ + A$
30 GOTO 20

This gives the report '4 Out of Memory' when the length of A$ is 12800 and the memory used is 13K.

Why is this when there should be a further 28K of memory available?

A The simple answer is that the missing 28K is not in fact missing It is still available to Basic, but not to variables If you need to increase the amount of memory available to store variables in then you will need to move the start of Basic higher up in memory.

The Spectrum manual contains details of the system variable which holds the address of the start of Basic memory You only need to change the address stored here and you will instantly 'find' the missing bytes.

Out and out

P Perkins of Wellingborough, Northants, writes

Q **I own a 48K Spectrum, and would like to know which *Out* ports to use to control my own peripherals. I would also like to know where they are situated in the rear edge connector. Can you help?**

A The Spectrum manual is not very helpful in this regard, however, there are a number of very good books on this subject available These are to be found in most good computer shops The ones that I would personally recommend are *The Complete Spectrum, Spectrum Hardware Manual* and *The Complete Sinclair Database*

Speaking out

Kevin Jenkins of Swansea writes

Q **There are a few questions I would like to ask you.**
1) Do you recommend the use of a speech synthesiser, and is the Currah Microspeech unit any good?
2) Is there a utility program to use *Cecil* on the Spectrum?
3) Does or will the Spectrum work on a large screen TV?
4) Do you know of any program that teaches you Welsh for the Spectrum, as I can only find them for French, German etc?
5) Do you think that the Spectrum + has a good keyboard and which computer, the Spectrum or the Spectrum + do you prefer?

A 1) Recommending speech synthesisers is not really what I am about, the Currah unit is pretty good value for money, however and is great fun – despite Currah's problems it is still available.
2) Cecil is available for the Spectrum, from a number of sources, a long list appeared in an issue some months back, check your back issues
3) The Spectrum will work with a large screen TV, but of course the picture quality will not be very good, the relatively low resolution will be shown up
4) There are no programs yet on the market that I have seen that offer Welsh language teaching but as one Welshman to another watch this space!
5) Now that the Spectrum has been discontinued you have no choice – only the Spectrum + is left – whether you like its keyboard or not.

Picture this

R W Jeffs, of London, writes

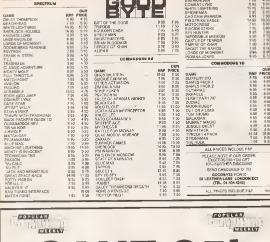
Q **I am writing a paint and draw program but am unable to surmount a problem which is holding me up. When I have made a drawing on the screen and I wish to move to another part of the program, the drawing on the screen is lost. Please how can I protect screens when I move to another part of the program?**

A I guess that what you wish to do is to store the contents of the display file in another part of memory, and put it back after you have finished communicating with the program's user This can be done by copying the display and attribute files to a part of memory (above *Ramtop*) which is protected from the rest of your program.

When you wish to redraw the screen picture you need only copy these bytes back to the appropriate file

You need to store the attribute file in order to save the screen colours, and flash attributes

Is there anything about your computer you can't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Phil Rogers and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2R 3LD



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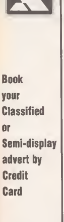
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Planet of Death on ZX81 I am stuck at the force field and do not know how to get through. Justin Smith, 181 Bawtry Road, Bessacarr, Doncaster, S Yorks DN4 4LH

Valhalla on Spectrum. I have Felstrong, Drapnir and Skornir but I cannot get any further. I am stuck in trouble. Help!! D J Wilson, 19 Beaconsfield Road Shotton, Deeside Clywd CH5 1BZ

The Count on Vic20 What do I do when in the solar oven? How do I kill the bat? Danny Jones 4 Varney Close Neasden, London NW10 0EA.

The Hulk on Commodore 64. I have got 12 gems. How many others are there and where can I find them? Michael Turpin 115 Meadway Haddesdon Herts EN11 0AT

Valhalla on Spectrum Where do you find Seamir and how can you obtain it? A Aberdein Hill of Belsie Torphins, Kincardineshire Scotland AB3 4HT

Orb of Orion (Micronet) on Spectrum How do I kill the dwarf? 7 Hill, 31 Elizabeth Lane Strood, Kent

Jewels of Babylon on Amstrad. How do I get out of the swamp? Justin Leahy 48 Congreve Road Eltham, London SE9 1LN

Stolen Lamp on BBC How do I get the key from the keybox to open the door North there is a way out of the catacombs Kaye Newton 7 Yew Tree Road Edmsley Hadorel Notts.

Planet of Death on ZX81 I cannot escape or get anything to happen in the maze Martin White 44 Milward Crescent Hastings, East Sussex TN34 3RU

Twin Kingdom Valley on Commodore 64. How do you get the master key from the dragon in the north tower? Stewart Burns 3 Emerald Road, Moss Nook, Manchester 31

Sherlock on Spectrum Why do Basil and the major disappear without trace when followed to certain locations? Bruce Vivers Wavel House Hillhead Halls, Don Street Aberdeen AB9 2WU

Heroes of Karn on Commodore 64. How do you kill the pirate spider and vampire bat? I have lstar Beren and many items including the ruby Brian Mannace 4 Aylesward Close, Hadleigh Ipswich Suffolk IP7 5BJ

Heroes of Karn on Commodore 64 I can't get past the witch. How do I get the key out of the hall of infinity? And the knight?? Martin Smith 82 Trallwn Road Llansamlet, Swansea SA7 9XA.

COMPUTER SWAP

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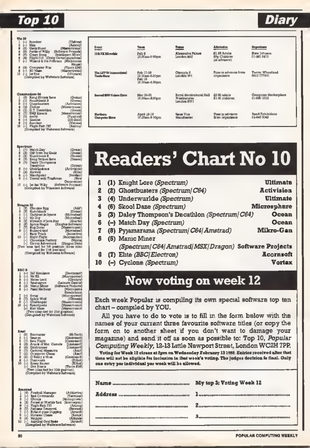
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Vic 20
1 (–) Snooker (Visions)
2 (–) Max (Anirog)
3 (2) Gods Shoot (Mastertronic)
4 (5) Perils of Willy (Software Projects)
5 (6) Crazy Kong (Interceptor Micro)
6 (4) Flight 015 (Craig Communications)
7 (–) Wizard & the Princess (Melbourne House)
8 (1) Computer War (Thorn EMI)
9 (–) 3D Maze (Mastertronic)
10 (–) Jet Pac (Ultimate)
(Compiled by Websters Software)

Commodore 64
1 (8) Kong Strikes Back (Ocean)
2 (1) Hunchback II (Ocean)
3 (–) Ghostbusters (Activision)
4 (4) Chiller (Mastertronic)
5 (3) D.T. Decathlon (Ocean)
6 (7) BMX Racers (Mastertronic)
7 (5) Booty (Firebird)
8 (–) Zaxxon (US Gold)
9 (–) Snooker (Visions)
10 (–) Flight Path 737 (Anirog)
(Compiled by Websters Software)

Spectrum
1 (1) Match Day (Ocean)
2 (3) Gift from the Gods (Ocean)
3 (2) Hunchback II (Ocean)
4 (5) Kong Strikes Back (Ocean)
5 (9) Daley Thompsons Decathlon (Ocean)
6 (–) Ghostbusters (Activision)
7 (4) Airwolf (Elite)
8 (–) Matchpoint (Sinclair)
9 (–) Travel with Trashman (New Generation)
10 (–) Jet Set Willy (Software Projects)
(Compiled by Websters Software)

Dragon 32
1 (8) Chuckie Egg (A&F)
2 (3) Hunchback (Ocean)
3 (–) Cuthbert in Space (Microdeal)
4 (–) Mr Dig (Microdeal)
5 (3) Mystery of Java Star (Shards)
6 (8) Space Magic (Knights Software)
7 (7) Bug Diver (Mastertronic)
8 (–) Buzzard Bait (Microdeal)
(–) Back Track (Incentive)
10 (–) Night Flight (Salamander)
(–) Chocolate Factory (Mirage)
(–) Circus Adventure (Dragon Data)
(Two titles tied for 8th position three titles tied for 10th position)
(Compiled by Websters Software)

BBC B
1 (–) 747 Simulator (Doctorsoft)
2 (–) Mr EE (Micropower)
3 (–) Horse Lord (Century)
4 (–) [illegible] (Leisure Genius)
5 (3) Manic Miner (Software Projects)
6 (–) Pearl Harbour (Microgame Simulations)
7 (–) Swag (Micropower)
8 (7) Sabre Wulf (Ultimate)
9 (–) Challenger (Mastertronic)
10 (–) Spectipede (Mastertronic)
(–) Star Maze (Mastertronic)
(Two titles tied for 10th position)
(Compiled by Websters Software)

Atari
1 (8) Encounter (Hi-Tech)
2 (–) [illegible] (Centresoft)
3 (1) Solo Flight (Centresoft)
4 (3) Attack of Mut Camels (Llamasoft)
5 (6) Gridrunner (Llamasoft)
6 (7) Carnival Massacre (Atari)
7 (2) Computer Chess (Atari)
8 (9) O'Reilly's Mine (Centresoft)
9 (–) Diamonds (English)
10 (–) Krazy Kopter (English)
(–) Ore Attack (Thorn EMI)
(Two titles tied for 10th position)
(Compiled by Websters Software)

Amstrad
1 (4) Football Manager (Addictive)
2 (–) Red Commando (Terminal)
3 (–) Ghouls (Micropower)
4 (2) Forest at Worlds End (Interceptor)
5 (–) Flight Path 737 (Anirog)
6 (7) Fantasia Diamond (Hewson)
7 (–) Roland goes Digging (Amsoft)
8 (–) Monster Chase (Romik)
9 (8) Blagger (Alligata)
10 (–) Admiral Graf Spee (Amsoft)
(Compiled by Websters Software)

Event	Time	Venue	Admission	Organisers
13th ZX Microfair	Feb 9 10.00am-6.00pm	Alexandra Palace London N22	£1.25 Adults 80p Children (in advance)	Mike Johnston 01-801 9172
The LET'85 International Trade Show	Feb 17-18 10.00am-6.00pm Feb 19 10.00am-4.00pm	Olympia 2 London W6	Free in advance from organisers	Turret Wheatland 0923 777000
Second BBC Colour Show	Mar 30-31 10.00am-6.00pm	Royal Horticultural Hall Westminster London SW1	£2.00 adults £1.50 children	Computer Marketplace 01-930 1612
Northern Computer Show	April 18-19 10.00am-6.00pm	Belle Vue Manchester	Free in advance from organisers	Reed Exhibitions 01-643 8040

Readers' Chart No 10

1	(1)	Knight Lore *(Spectrum)*	**Ultimate**
2	(2)	Ghostbusters *(Spectrum/C64)*	**Activision**
3	(4)	Underwurlde *(Spectrum)*	**Ultimate**
4	(6)	Skool Daze *(Spectrum)*	**Microsphere**
5	(3)	Daley Thompson's Decathlon *(Spectrum/C64)*	**Ocean**
6	(–)	Match Day *(Spectrum)*	**Ocean**
7	(8)	Pyjamarama *(Spectrum/C64/Amstrad)*	**Mikro-Gen**
8	(5)	Manic Miner *(Spectrum/C64/Amstrad/MSX/Dragon)*	**Software Projects**
9	(7)	Elite *(BBC/Electron)*	**Acornsoft**
10	(–)	Cyclone *(Spectrum)*	**Vortex**

Now voting on week 12

Each week Popular is compiling its own special software top ten chart – compiled by YOU.

All you have to do to vote is to fill in the form below with the names of your current three favourite software titles (or copy the form on to another sheet if you don't want to damage your magazine) and send it off as soon as possible to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 12 closes at 2pm on Wednesday February 13 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... My top 3: Voting Week 12

Address .... 1..

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New Releases

BITS AND PIECES

Witchswitch is a new Commodore 64 game from English Software, which has moved in this area from being predominantly an Atari company The game is a strange one – it gets lots of points for original thought, but as a game seems bitty and incomplete.

The play involves several sequential screens of action and involves overcoming various obstacles many of them mammalian, as you make your way to the witch – drop some potion into her cauldron and the witch switches, ie, gives up her evil ways and becomes a goodie

You first play a monkey and each screen requires dodging firing and timing in the classic tradition. But the settings are different – in the first you are led across a swamp by a leprechaun, you must conserve power while flicking away swooping birds with your tail Later you become an owl and must avoid snakes, lightning bolts and thunderclouds Other screens feature spiders, wasps and sundry other creatures The graphics are not that good but there is a certain style and atmosphere to the game

The real problem with the game is that it doesn't hang together Each bit provides a moderately entertaining dodge or reaction game, but it lacks any real sense of logic Whilst the manufacturers point out proudly that the game does not have 1,000 screens (an attitude I agree with), the half dozen or so screens it does have are too few, particularly since relatively few different things occur Some good ideas here somewhere, but they don't make it on this game

Program *Witchswitch*
Price *£8 95*
Micro *Commodore 64*
Supplier *English Software*
Box 43
Manchester
M60 3AD

SIMPLE FUN

Waterski 3D is one of the most enjoyable Commodore 64 games I've played recently It owes nothing to *Jet Set Willy*, or any of its countless clones, it doesn't have 5,000 screens and isn't, in fact, mega in any way whatever, except maybe megafun.

The simple idea of this game is to race your speedboat at breakneck speed around an increasingly difficult course Not only is it a matter of keeping the speed right and staying within the guide cones but there are such everyday skiing considerations as oil slicks and minefields to be dodged.

Your view on the action is from behind, the route rushes towards you, so nasty looking objects suddenly appear in the distance, grow in size quickly and basically require you to take avoiding action within a split second

That's all there is to it really – race around the track as fast as possible and dodge things The reasons it works so well are the careful touches – skier and speedboat move relative to one another as they really would, so it isn't merely a matter of keeping the boat out of harms way, you must also consider the path of the skier It is perfectly possible to dodge an obstacle with the boat, only to have the skier sink beneath the waves to be eaten by the sharks

Another neat touch – the race appears to be taking place in a secluded bay, thus much of the horizon contains land rather than sea This scrolls neatly left and right as you make each turn to reveal different little touches – craggy outcrops, little white houses towers – it almost looks like the northern coast of Greece

Perhaps the best feature is the jumps, every so often a ramp appears – if you can get the boat past it, but the man square on to it he flys into the air just like the real thing The whole simulation, including details like the way the boat moves around corners using centrifugal force, is accurate to give you a real feel for the sport without unnecessary complications – the controls are just left, right, faster, slower

In short, it's thoroughly addictive and good for reasons which will remain good reasons for a long time to come Unlike many a mega game you won't tire of it

Program *Waterski*
Price *£7 95*
Micro *Commodore 64*
Supplier *Allgate Software*
1 Orange Street
Sheffield S1 4DW

GIFT HORSES



You couldn't actually call anything currently available for the C16 exciting In fact the current dearth of software for the machine makes it more a question of any port in a storm. Because of this a rather ordinary little programs like *Roller Kong* is going to look very good indeed.

Once again Kong is perched on top of a skyscraper with the usual damsel in distress Your task is to climb up the building and rescue her before she's eaten by a spider (no, I'm not sure how the spider fits in either)

Kong is throwing (guess what) barrels and fire bombs at you which can only be stopped by your bashing them with an axe, alternatively you can try to get out of their way It's the original climb and dodge game done in a totally predictable and graphically dull way

Program *Roller Kong*
Price *£5 95*
Micro *C16*
Supplier *Melbourne House*
Castle Yard House
Castle Yard
Richmond
Surrey

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Sorcery	Arc	Amstrad	£8.95	Virgin
Time Machine	Arc	Aquarius	£8 95	Virgin
Muncher	Arc	Aquarius	£2 49	D Spenser
Strike Force	Arc	Aquarius	£1 49	D Spenser
Golf Practice	S	Aquarius	£1 49	D Spenser
PetFile	Ut	BBC	£11 95	Sigma Press
Spider Speller	Ed	BBC B	£8.00	Viking
Bullion	Arc	Commodore 64	£4 00	New Horizons
Aqua Racer	Arc	Commodore	£6 00	Bubble Bus
Dark Tower	Arc	Commodore	£7 90	Melbourne House
Powerplan	Ut	Commodore 64	£44 95	First Publishing
Frak	Arc	Commodore 64	£9 95	Statesoft
Moon Cresta	Arc	Commodore 64	£6 95	Incentive
Mathmaster	Ed	Commodore 64	£14 99	First Publishing
ADA Training	Ut	Commodore 64	£49 99	First Publishing
Assembler/Monitor	Ut	Commodore 64	£19 99	First Publishing
Basic 64	Ut	Commodore 64	£34.99	First Publishing
Cecil	Ut	Commodore 64	£8.00	New Horizons
Firstbase 64	Ut	Commodore 64	£36 99	First Publishing
Firstword	Ut	Commodore 64	£35 95	First Publishing
Graphics 64	Ut	Commodore 64	£11 95	First Publishing

New Releases

FEW SCREENS

Melbourne House seems to want to prove that there is more to the company than very addictive and sophisticated adventures. Actually it long ago proved its arcade mettle with *Penetrator* on the Spectrum and, more recently, the Commodore 64.

However, the latest arcade release from the company is extremely disappointing — the worst kind of uninspired, dull and inferior *Jet Set* clone. It's called *Dark Tower* and has a nice title screen and various prizes for high scores. That's it though.

There are 28 screens which is not many — neither are the screens particularly impressive in themselves, simple platforms suspended in mid air, ropes, a few bounding things and a few walking things and that's about it. All the shapes are small and even the screen display has been reduced so that it forms a square.

You are Prince Harry who has been turned into a mutant (you look, as do many of the other characters, like an egg on legs) and must search the tower collecting jewels. Collect all the jewels, take them to the final chamber, solve a puzzle and your boredom is over at last. It's *Manic Miner* all the way as you calculate when to jump dodge comic mutants, etc, etc, etc.

Program *Dark Tower*
Price *£7.95*
Micro *Commodore 64*
Supplier *Melbourne House*
Castle Yard House
Castle Yard
Richmond
Surrey

GREAT GRAPHICS

With the Karn series as well as programs like *Forest at World's End*, Interceptor Micro's has, to my mind anyway, established itself as the premier software house for consistently good graphics adventures. *Heroes of Karn*, originally written on the Commodore 64, has now been converted to the Spectrum and the original, very high quality, graphics have been faithfully recreated — so well in fact, that I'll stick my neck out and say that this program has some of the best graphics ever seen on the Spectrum. Someone at Interceptor has a lot of drawing talent.

Having said that, I must admit that *Heroes of Karn*, plot wise, still suffers from the common adventure fate, ie, an overdose of Tolkien, Herbert and Robert Howard. It's all Elf Lords, Powers of Night and the Halls of Callastheon, nevertheless, such stuff is very popular.

The language analysis is good, quite complex sentences can be strung together, although you still get irritating things like 'I do not know the word Dungeon' when you are in the Dungeon. But there are lots of clues, problems, strange objects and all the other paraphernalia of compulsive adventures. With minor reservations, excellent.

Program *Heroes of Karn*
Price *£6.50*
Micro *Spectrum*
Supplier *Interceptor Micro's*
Lindon House
The Green
Tadley
Hampshire

DODGE & BLAST

The Caverns of Sillahc is one of those games which is so completely unexciting, both technically and in terms of plot that it is difficult to raise any enthusiasm for it. On the other hand, it is quite professional, slips in all the right places and is of a type that some people, particularly those who've recently purchased their computer, seem to enjoy and may want to buy.

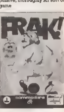
So, for the benefit of the above named, the game involves flying about in your spaceship, picking up roving robots and dodging hoards of baddies. As you search further and further, there are, like *Caverns of Mars*, obstacles to be dodged and sections of rock to be blasted away.

That's it really, dodge, blast, collect and dodge some more. The graphics are fairly basic and there isn't a single original idea in the game, but it plays along quite happily.

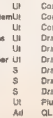
Program *The Caverns of Sillahc*
Price *£6.95*
Micro *Commodore 64*
Supplier *Interceptor Micro's*
Lindon House
The Green
Tadley
Hants

BIGGER

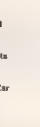
The really clever thing about *Frak*, apart from its wit, is that everything in the game is so much bigger. Bigness transforms what is (well, almost) a straight left, right, jump affair into an utterly addictive, compulsive, thoroughly AI sort of game.



This Week








Personal Finance	Ut	Commodore 64	£14.95	First Publishing
Stock Accounts System	Ut	Commodore 64	£74.95	CYB
Pascal 64	Ut	Commodore 64	£34.95	First Publishing
6801 6800,6301 X Ass	Ut	Dragon	£65.00	Compusense
All Flx Assemblers	Ut	Dragon	£175.00	Compusense
Flex Cross Assembler	Ut	Dragon	£4.00	Compusense
Atlantic Zap	S	Dragon 32	£5.00	New Horizons
Simon	S	Dragon 32	£5.00	New Horizons
Stranded	S	Dragon 32	£6.00	New Horizons
Cecil	Ut	Plus 4	£6.00	New Horizons
Stranded	Ad	QL	£10.00	New Horizons
Chomper	Arc	QL	£13.00	New Horizons
Programs 1	Arc	QL	£11.00	New Horizons
Zfred	Arc	QL	£13.00	New Horizons
Biology	Ed	QL	£11.00	New Horizons
Moon Creets	Arc	Spectrum	£6.95	New Horizons
Taspro	Ut	Spectrum	£3.99	Seven Stars
Astro Nut	Arc	Vic 20	£4.00	New Horizons
Forces of Zar	Arc	Vic 20	£4.00	New Horizons
Cecil	Ut	Vic 20	£6.00	New Horizons
Chomper	Arc	ZX81	£4.00	New Horizons
Beghurst	Arc	ZX81	£4.00	New Horizons

Pick of the week

ENVIOUS GLANCES

Sorcery, released by Virgin for the Commodore 64, was a pretty good game in the *Alchemist* vein *Sorcery* for the Amstrad represents the first program I've seen on the machine which should make Spectrum and Commodore owners envious – *Sorcery* on the Amstrad is wonderful

The game is arcade-ish in look and adventure-some in style, although all instructions are espressed through the joystick – objects are picked up and used via presses on the fire button

You are a wizard and the objective is to free a number of other wizards who have been trapped in a number of locations There are swords, keys, magic spells, stars, axes, etc, etc, each of which have a different function which you must discover – some doors open automatically, while others will need a key

There are, obviously, various baddies you must avoid – contact drains energy which can only be replenished by ... well you find out What makes the game special is the astounding quality of the graphics, they are beautifully designed to an incredible degree of detail and make the 64's sprites look pathetic This cartoon detail extends through all the 40, quite distinctive, screens A welcome back to Virgin Games too

Program *Sorcery*
Price *£8 95*
Micro *Amstrad*
Supplier *Virgin Games*
2-4 Vernon Yard
Portobello Road
London W11 2DX

'Frak' is the thinly disguised expletive uttered by Trogg the caveman whenever misfortune befalls him (a collection of Trogg's assorted 'Fraks' is available under the title *The Trogg Tapes)* Misfortune takes the form of mistimed jumps and being beset upon by the cute looking Bunyip and fellow cavepeople, Hooter and Poglet

Trogg's only defence is a yoyo which he can throw at enemies to clear the way That and an assortment of daggers, skulls and heat seeking ballons make up the game The really important thing, though, is that everything occurs at about five times the normal size Trogg the caveman is an enormous sprite a fifth of the screen high, and the mazes and baddies are similarly large This fact alone adds much to the appeal of the game; the sense of 'playing' a cartoon is wonderful.

Program *Frak 64*
Price *£8 95*
Micro *Commodore 64*
Supplier *Statesoft*
Business and Technology Centre
Bessemer Drive
Stevenage
Hertfordshire

COUNTRY QUIZ

Kosmos Software is possibly best known for its language programs, *The French Mistress* and *The German Master*, but in a similar educational vein has produced some large scale quiz programs for the BBC Latest of these is *Identify Europe* in which you get tested on countries and capitals

It's quite neatly done, a hires map of Europe is drawn and a country flashed – you are asked to name it from a choice of six and then asked its capital It's done quite slickly but really that's about it It teaches you that information quite well and that's worth something, I suppose, but personally I'd quickly get bored.

There is an additional data file which asks you questions on the major European seas which may lengthen the entertainment factor somewhat and you can choose how many chances you have to get each question right before the computer tells you. Good for Geography teachers perhaps

Program *Identify Europe*
Price *£7 95*
Micro *BBC*
Supplier *Kosmos*
1 Pilgrims Close
Harlington
Dunstable
Bedfordshire

MR BUN

Bridge is one of those games that everybody seems to know how to play except yourself, and what's worse, every time you try to make sense of the rules your brain becomes more addled.

I do not know how to play bridge but I am told by those who do that, rather like chess, it is quite possible to make a computer play very well indeed

Alligata has produced *Contract Bridge* for both the Commodore and the BBC recently – in the latter case it is one of only a few similar titles. The program is designed for a single player, the other three being played by the computer

All the usual conventions are in operation Acol bidding, Stayman, it will even intimidate you with preemptive jump bids Good news for *BBC* owning bridge fans. Personally I'm still looking at the screen trying to figure out what's going on – maybe I should stick to what I'm good at Anyone got Mr Bun the Baker?

Program *Contract Bridge*
Price *£7 95*
Micro *BBC*
Supplier *Alligata*
178 West Street
Sheffield S1 4ET

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases *Popular Computing Weekly* 12-13 Little Newport Street London WC2H 9LD

This Week

Bubble Bus, 87 High Street Tonbridge Kent TN9 1RX 0732 355962 **CYB,** 8 Briar Avenue Norbury London SW16 3AA 01-764 5994 **Compusense,** PO Box 169 286D Green Lanes London N13 5TN 01-882 0681 **D Spenser,** D Spenser Software 50 Craneswick Close Billingham, Cleveland **First Publishing,** Calco Software, Lakeside House Kingston Hill Surrey KT2 7QT 01-546 7256 **Incentive,** 54 London Street, Reading RG1 4SQ, 0734 591678 **Melbourne House,** 39 Milton Trading Estate Abingdon Oxon OX14 4TD 0235 835001 **New Horizons,** Four Winds, Leum Lane Rogerstone, Newport, Gwent NP1 9AF **Seven Stars,** 15 Gloucester Avenue, London NW1 7AU 01-485 7775 **Sigma Press,** 5 Alton Road, Wilmslow, Cheshire SK9 5DY **Statesoft,** Business & Technology Centre Bessemer Drive, Stevenage Herts SG1 2DX 0438 316561 **Viking,** 59 Central Avenue Syston, Leicester LE7 8EE **Virgin,** Virgin Games, 2-4 Vernon Yard, Portobello Road London W11 2DX

This Week is a new section that covers all the new software coming on to the home micro market each week All suppliers should send details of their new programs to This Week *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 9LD



Stalemate

The news of the latest developments from Commodore and especially Atari is certainly exciting. Pundits have been predicting rapid drops in the price of hardware for the last two years but both American companies have previously been guilty of resisting all change and squeezing every last cent out of the market. A prime example being the way Commodore continued to tout the outdated Vic 20 at an inflated price relying on the relative unsophistication of first time buyers. Now, doubtless as a direct result of the dramatic changes in Jack Tramiel's outlook, both companies look to be in the forefront of supplying business quality 'state of the art' machines at a home micro price.

At the same time I'm disappointed that Commodore at least sees this upward step as the time to start bleating about IBM compatibility. For those that don't know, in the £1000+ market the number of people who can produce a successful micro that does anything except run IBM PC programs a bit, or sometimes a lot, faster than the original can be counted on the fingers of one hand. Apple and Apricot spring to mind and few others. Now I don't mind admitting that I fall firmly into the camp that believes it is far too soon to contemplate standardising computer technology, and in particular IBM are far too dull and pedestrian a company to be allowed to call the tune.

IBM and comparable machines are often overpriced, obtuse, inefficient and slow for their power relative to home machines which have to make full use of all their resources. For example, Basic benchmarks put the BBC B and the Amstrad way above IBM PC, PCjr, and many other business micros. (For a games machine this would be less important because you could resort straight to 16-bit machine code but many business programs have to be written in high level languages for very good reasons such as the need for easy debugging if unexpected problems occur.) The same is true of much of the software – compare Level 9's 32K version of *Colossal Adventure* with many extra locations to the 200K original or the efficiency of *Tasword 464*.

Home micros are moving up, and business machines are moving down just as fast, to compete in high street stores for the vast market of sophisticated home users, small one-man businesses, etc, who want a range of the standard utilities but cannot possibly contemplate paying three figures for a piece of software or four for the hardware. Most of these people know little, and care even less, about IBM. They are much more interested in value for money.

It is to Atari and Commodore, perhaps even Sinclair, that we should look to break this market dominance wide open. They certainly have the capacity to do it. A professional system is doing well if it sells 50-200 units. Compare that to the millions sold by the leading home micro companies, companies that are also much more familiar names.

I am convinced that, if allowed, innovation will come from the bottom up. Acorn for example appear to be the first to have found commercial applications of laser disc storage. In general, home micros have shown the ability to grow and develop at phenomenal speeds. IBM standardisation will plunge us into the situation where new ideas and peripherals never take off because there isn't the software base to support them. The result will be up to five years of boring stalemate until the pressures of ever-advancing technology bursts things wide open again.

Tony Kendle

A quick profit

Puzzle No 144

Sammy Sharp had had a profitable day selling shirts at the local market.

'Just look at the quality! Best value in town. Fifteen quid for a shirt like those in the shops. But I'm not charging you 15. I'm not charging you 12 – I'm not even going to charge ten! Just £9.99 and a bargain at the price!'

In no time at all he had sold off his entire stock of six dozen shirts.

As he was packing away I happened to notice the receipt showing the total price that he had paid for the shirts in the first place.

Unfortunately the rain had smudged the first and last digits. Can you say how much profit Sammy made on the deal?

Solution to Puzzle No 139

The Platonian for 1985 is 5534, and numbers consisting of the same digits as their decimal counterparts are: zero to 6 (same in both systems), 23 (32 septenal), 46(64), 265(526), 316(631), 1030(3001), 1234(3412), 1366(3661), 1431(4113), and 1454(4145).

The program counts sequentially from zero upwards to 1985, generating each Septenal equivalent in the six *For/Next* loops. As a rough check that all the digits in each number match, the sums and products (except for zeros) are taken and compared. Only if they are equal is the result printed. Note that these results need to be examined to reject those values that have not been eliminated.

Winner of Puzzle No 139

The winner of Puzzle 139 is M W Peters of Spetisbury, Dorset, who receives £10.

The Hackers

Do you have Zork?
No, but we have Zark.
Isn't that a bit like Znerk?
No, it's more like Zlurt.
But Zlurt has no sound effects.
No, you're thinking of Znorp.
COBBLERS!
No, 32K Cobblers has very good sound.
Look, let's just forget the whole damn thing!
MICRO-HUT HUGE CHOICE OF GAMES!
MICRO-HUT HUGE CHOICE OF GAMES!
MICRO-HUT HUGE CHOICE OF GAMES!



CHEZ PI THE MORNING POST.
ULLO A LONDON POSTMARK WONDER WHO IT'S FROM.
THIS ONE'S FROM PIANA LET'S SEE HOW SHE'S GETTING ON AT SAINT MUCHFUNN'S MIXED UP BOARDING SCHOOL.
Dear Mater
I hate this school. This mourning, Mark Skidds poked his tung out at me, and I got a telling off from Miss Fit cos I gave him an uppercut.
Boys dont know what growing up means to us gurls, its alright for them
I get bored rigid after lessons. Wye dont you send me some pockit money?
- Luve, PIANA
WE'VE BEEN INVITED TO THE 15th ZX MICROFAIR!
TCH PIANA WANTS POCKET MONEY AND I'M SKINTEROO
PROBLAM SOLVE' GO TO DE MICROFEAR, DEN WE HAVE BREAD TO SHEN DE KID
I'VE A BETTER IDEA! SHE'LL ONLY WASTE MONEY- BUT YOU'D DO BETTER TO SEND HER THIS IN LIEU
OF COURSE! IT'S WHAT EVERY KID HER AGE MUST HAVE! TA!
DAYS LATER, IN PIANA'S DORMITORY
GOT A PARCEL?
IS IT SWEETS? CAN I AVES ONE?
Deer Poppet
Thank yoo for your letter. I am afrade I cant send you any munny because im broke, but please find inclosed present.
Now yoo are growing up to be a young lady this will prepair you.
Be good.
Love & hugs - mummy
OBOY! A PRESENT! I BET IT'S A C5!
NO, THAT BOX LOOKS TOO BIG!
PRAPS ITS CAKE! CAN I AVES A BIT?
SNOT CAKE! MATER SAYS IT'S 'COS I'M GETTING TO BE A BIG GIRL NOW, AN' ... YIPES!
WHATSIT? PUDDEN?
THE SHAME! THE EMBARRASSMENT!
BIKKIES, IS IT? JAM ROLL?
I SHOULD HAVE GUESSED THERE'D BE STRINGS ATTACHED
I MEAN - WHO SENDS THEIR DAUGHTER TEN PACKS THROUGH THE POST?
10 PACK
PIANA, YOU LUCKY THING! IT'S 10 OF AUTOMATA'S BEST GAMES ON ONE BUMPER CASSETTE!
THE ROTTERS! IT'S NO GOOD TO ME, I HAVEN'T GOT A SPECTRUM! AND IT DIDN'T COST 'EM ANYTHING! HOW HUMILIATING! I'M GONNA SEND 'EM A SNORTER!
So
"... SO UNLESS YOU SEND ME EITHER EQUIPMENT TO PLAY THIS ON, OR A C5 ELECTRIC CAR LIKE WHAT I WANT, I'M SENDING SOME HEAVIES ROUND. LOVE, PIANA!'
INGRATE!
Groucho Evans
TELL YOU WHA- IF WE TAKE ONE OF DE WHEELS OFF A RALLAH SHKATE, WE CAN SHEND IT TO HAH AN' SAY ITS A C-5, SHE WON'T KNOW ANY DE FRANCE. SHES JUS A KID!
AND NOW... ABOUT THIS MICROFAIR!
SEE US AT THE 15th ZX MICROFAIR! LOTS OF FREEBIES, BARGAINS AND LUNACY!! YES! FEBRUARY 9th! COME IF YOU'RE CRAZY- BUT YOU'D BE CRAZY NOT TO!!
PROMISE YOU WON'T BE COLLECTING FOR ETHIOPIA THIS TIME GRIST?